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March 1981

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VOLUME 2 NUMBER 3

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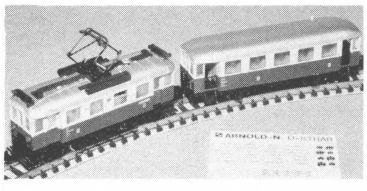

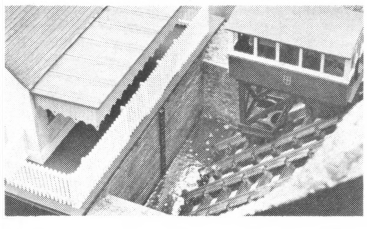

Top: *You can model trams in N scale these days, as well as in larger scales. This is the exquisite little Arnold MAN tram and trailer which can get you started (complete with stick-on signs supplied). See our review on page 161 and the layout feature on page 143.* **Above**: *On page 148 you can see Paul King's fine cliff line. One of the hidden details is worth seeing — the dank water collection at the bottom of the track way. All done with varnish poured in and left to set.*

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On the cover
In this issue we take a first look at trams and tramways with several related articles to get you started on the tram modelling idea. You can see trams operating at Crich, but this typical country tram terminus scene comes from the East Anglia Transport Museum with a Blackpool Corporation car waiting to pick up passengers in a rural setting which would be easy to reproduce in miniature.
(photo by W. David Askham).

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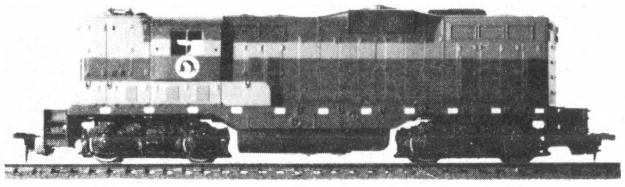

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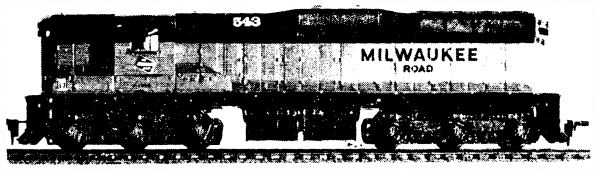

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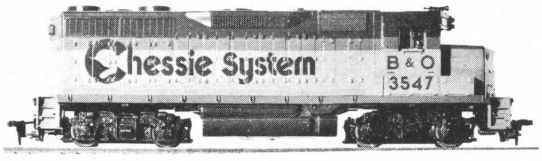

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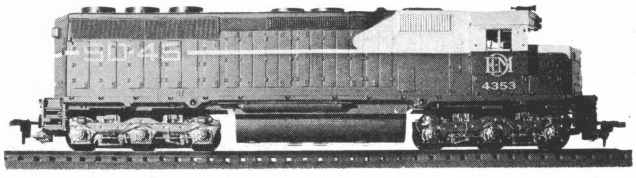

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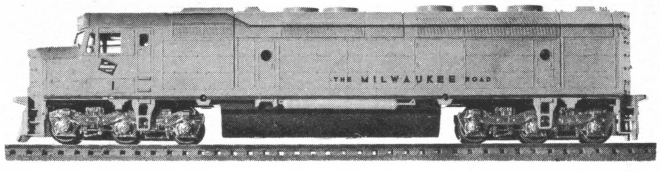

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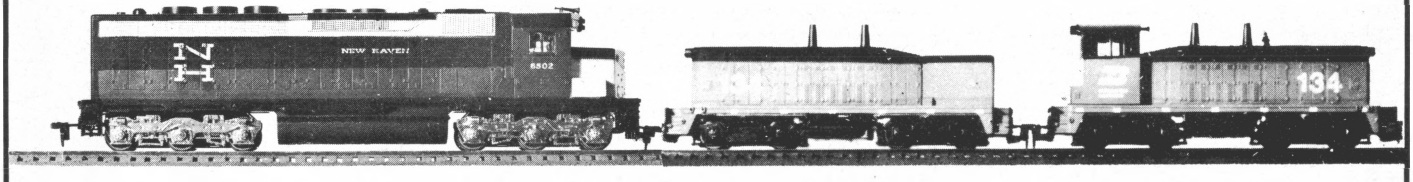

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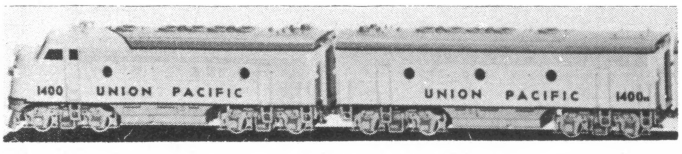

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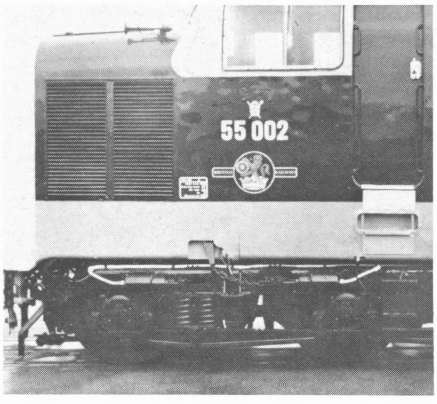
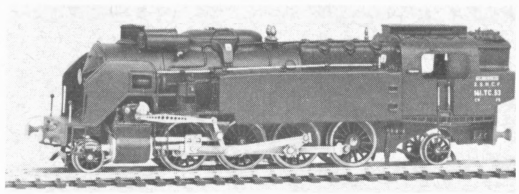


Editor's desk

Space is extra tight this month as we have an issue which doesn't ignore trains, but also crams in about 21 pages of material to introduce you to the fascinating subject of trams and tram modelling, if you are not already familiar with this stately form of transport. In this age of bureaucracy we tend to put almost everything into neat 'pigeon holes', and model (and prototype) trains are no exception, for we talk of 'branch lines', 'steam age', 'diesel age', 'modern image' and much more under such handy titles as though they are all separate subjects, each distinct from the other. It is a convenient shorthand way of describing particular interests, of course, but in my experience it sometimes has a negative effect of blinkering us to new interests which might well be worth pursuing. Thus there are 'steam age' enthusiasts who look no further when they see the word 'diesel' in a title... and so on. It seems to me that trams have suffered somewhat in this 'pigeon hole' philosophy, for with relatively few exceptions, most of us see large scale model trams in one corner of the larger exhibitions, mutter about 'specialist interests', and pass on to the railway layouts.

By ignoring trams, however, you may be passing by some interesting additional aspect of model transport applicable to your existing or projected layout. Many big conventional layouts have static city streets as part of the scenery... so why not add trams and bring them to life? Trams are great space savers too because they are short, and curves can be tight. The articles in this issue should give the idea, certainly sufficient to get you started, and we'll have some follow-up articles in future issues. Next time back to more conventional things — look for a Lima DMU conversion, canal modelling, containerisation, modelling a cattle dock and much else. Join us then, second Friday in March. **Chris Ellis**



More for 1981

An interesting Jouef development is a link up with Ks in Britain for a series of historical locomotive kits in HO to supplement their ready-to-run material. First of these is the 1844 Buddicom, pioneer loco on the Paris-Rouen route, and the second is the 141TC suburban heavy tank loco (2-8-2T, a Nord design of 1932-33 (shown above).

Elsewhere there is news of the first double slip in N gauge from Shinohara just released (see Shopwindows), Roundhouse are producing the new American standard 52ft Railgon in HO with a companion 50ft Railbox. Joe Works of Japan are to do kits of a Sandy River RR 0-4-4T Forney in HOe, a Shay, a Bo-Bo steeple cab (Jap prototype), a 0-6-0 tender loco, and a Sandy River 2-6-2T plus a range of Sandy River RR passenger cars and a caboose, so this famous New England NG line will be well and truly possible in HO form.

Introducing trams...

Over 120 years ago in Britain when roads were little better than dirt tracks, and horses provided the motive power, engineers looked at railways and realised that a similar method used on the roads would be more productive. Stage coaches only carried about a dozen people, and horse buses were all right for up to 20 or so, but by mounting a body on flanged wheels and running along a pair of iron rails in the road, more people could be carried due to the reduced friction of wheel on track. Thus the first horse tramway in Britain started in Birkenhead in 1860, followed shortly after by lines in London and other places.

As time went on loads increased and the engineers of the day looked at the railways with their steam traction and decided to copy them. So new lines were built and others were converted to steam tramways. More people could travel and bigger cars could be hauled, some of which carried over 100 passengers. Still traffic increased, and in the 1890s electric traction was tried and found to be to everyone's advantage. This saw the rapid disappearance of horse and steam tramways almost everywhere, for electric traction was the clean and efficient way to move passengers around.

The new technology led to a new style of tram building. New factories were started and thousands of trams in every shape, size and colour were produced for home and export. Such was the influence of the tram that in one town, it is said, picture post cards were sold showing trams in the high street, even though there were not actually any trams in that particular town! However, the hey-day of the tram in Britain was quite short. The late 1920s and the 1930s saw the start of replacement of tram services by the motor bus and trolley bus which were considered more efficient. By 1962 almost all British tramway systems had gone. Blackpool and Douglas, Isle of Man, have the only remaining tramway systems, owing their surivial mainly to the holiday trade in those parts. Some trams remain in British museums, most notably at Crich where they operate as well.

... now see page 128

Jack Kine's scenic session...

On making cliffs and cuttings

Model scenery construction will invariably lead you into a common enough situation where a cliff face or a cutting, needs to be represented. Indeed the use of a cliff face is often an excellent ploy to give depth where in certain circumstances very little space is available on the baseboard. Conversely the introduction of rocks, even on the smallest scale lends enormous scenic attraction to any layout.

There are many superb examples of American railroad layouts where the spectacular scenery depicts ravines, deep cuttings and gorges, spanned by complex wooden trestle bridges. In Great Britain, we must settle for something a little less on the grand scale but let it be said that both Wales and Scotland possess superb mountain scenery that will ever remain a challenge to the model railway enthusiast.

Some study or research on rock formation is important if a realistic effect is to be achieved. So a visit to your local library is well worthwhile, or even better, go and look at a cliff or cutting during your travels. There are any number of different land forms in the British Isles, which result from a variety of rocks pushed up to the surface by volcanic pressures millions of years ago. The oldest rocks lie in the extreme North West of Scotland, whilst the youngest is to be found in the South East of England. In broad terms they are granite, slate, carboniferous limestone, chalk, sandstone and shale.

One of the easiest to portray is the chalk cliffs that abound in the South of England. These stacks of white chalk predominate from Dover to Brighton, and they stand like a stack of torn up books. So let us examine one way of successfully representing a chalk cliff or cutting.

One point worthy of note is the fact that where a cliff face occurs naturally there is usually a considerable amount of undergrowth and vegetation, whereas, in a cutting which man has driven through a hill or mountain side, the rock and chalk strata is revealed leaving the surface relatively clear of scrub. Only the odd tuft of grass grows on the earth lines in the strata.

There are many and various materials that can be used to portray a reasonable rock face. I do not advocate cork bark, even though it is widely available. No matter what you do with it, it will remain what it is — cork bark! So be a little more adventurous and try the following: you will require a pack of polystyrene ceiling tiles (damaged will do, they will be cheaper) and a tube of tile cement or white PVA wood glue; a hacksaw blade; craft knife; a few cocktail sticks; white emulsion paint; 1lb pack of Jack Kine Modelling Powder; a couple of good artists brushes, ½ inch and ¼ inch (the type used for oil painting, are fine), a few tubes of water colour or acrylic paints, or if you can afford them Gouache are the best; also while you are at it purchase a fine sable brush for detailing the finished painting. Armed with these items you are all set to produce a considerable run of rock face. Start off with the ceiling tiles. The numbered stages correspond to the numbered drawings.

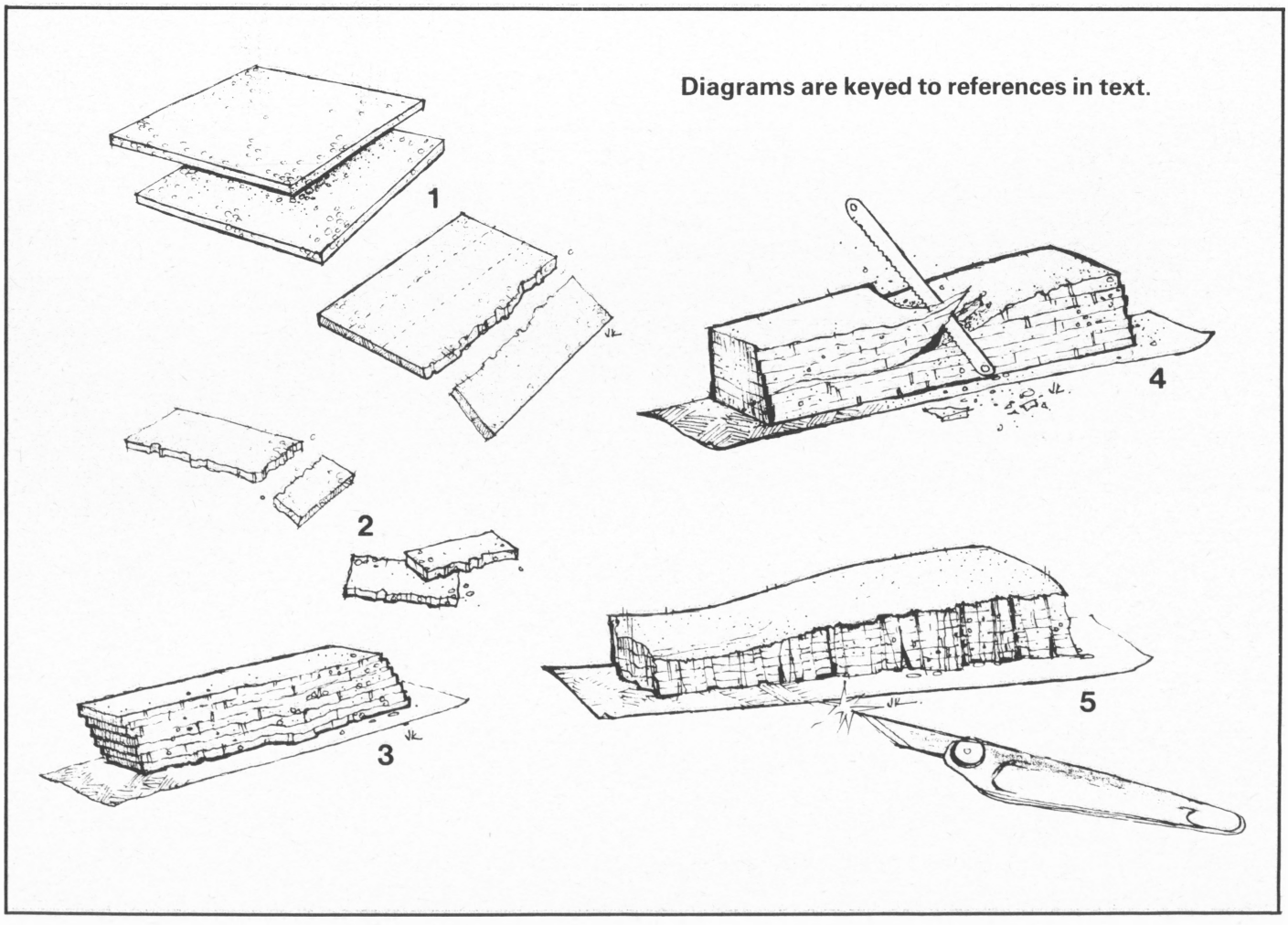
(1) Take a ceiling tile, score across say 2 inches and break the tile into a strip. Next, break the strip into smaller pieces.

(2) Keep some strips the full length of the tile. Draw the shape of the cliff or cutting on a strip of stiff brown paper and glue the broken strips down to the paper base.

(3) Place a weight on top and leave to dry. Remember to stagger the pile to give the cutting a gradient.

(4) Using the hacksaw blade 'cut-saw' the pile into shape. Smooth the top (grass) with medium sandpaper. Do this job in the open; it does make a mess and foamed polystyrene is very electrostatic. In other words, indoors, it gets everywhere — on you, on the curtains and on the floor. Working from any pictorial references you can find, cut the vertical 'falls' of the cliff face with a sharp craft knife.

(5) Now, using the Jack Kine Modelling Powder, mix a thick creamy batch and paint over the surface of the modelled cliff, working it into the cracks and crannies, and with a modelling tool, or palette knife,



detail the various rock and scree patterns that are presented by the broken and cut surface of the ceiling tiles. Leave for at least 48 hours to dry hard.

A little work with fine sandpaper will clean up the odd 'spikes' and clean off the rough stuff and you are now ready for painting. Blow away any dust left after sanding the surfaces and apply a coat of household matt white emulsion paint overall. Stipple the paint on, using at least a ½ inch brush, then leave to dry for 12 hours, or longer.

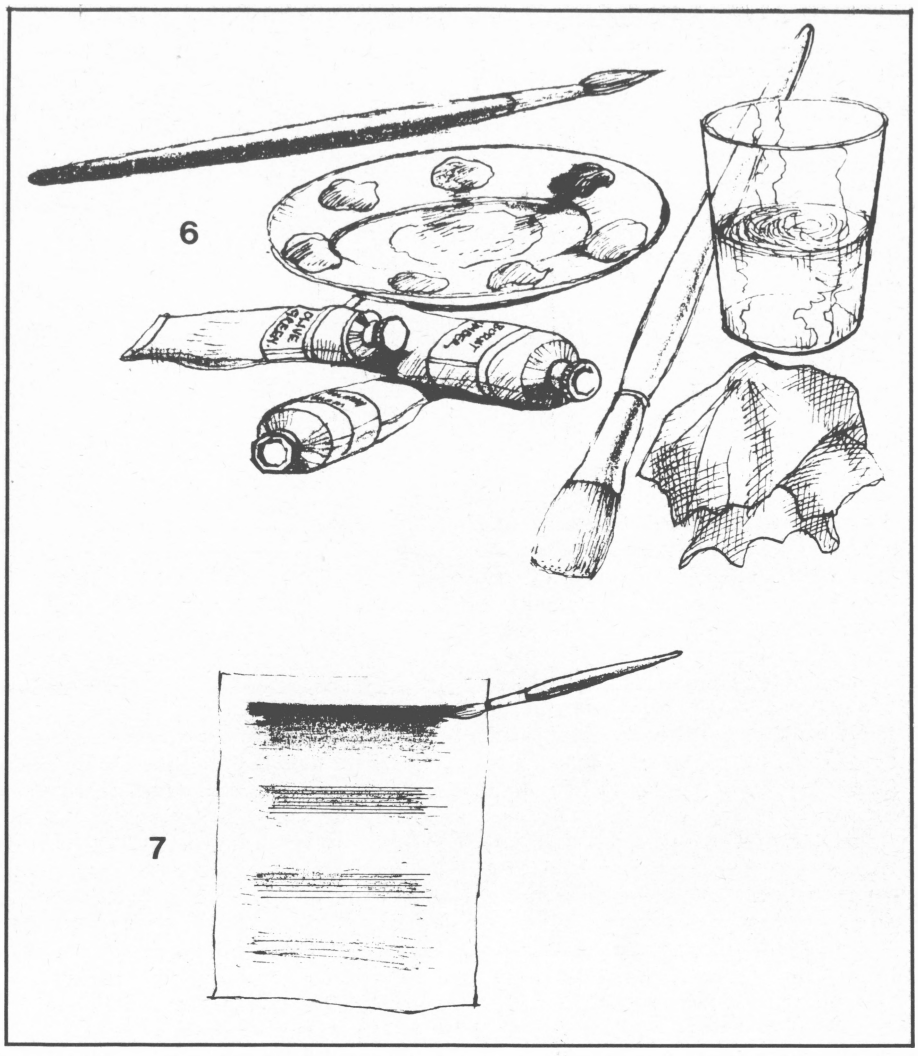
Finally, cut the paper around the base of the cliff with a sharp knife and you are now ready for the final colouring job.

So far, I have kept in my mind that the work undertaken has been approached from the craftsman's point of view. Now we have to change to an artistic approach and this is the time when a lot of railway modellers back off! At best a few tentative dabs of colour are applied — some even spray a few patches of green and black here and there — and view their efforts with the comment. 'Well it's the best I can do.' Not so; let us examine the essentials in painting the landscape.

First of all, you will require the necessary paints, brushes and a few bits of equipment to mix and work from. My illustration (6) shows the basics — an old plate — a glass or plastic beaker to hold the water — a scrap of clean cloth, and you are ready to go.

I have already stipulated that a couple of brushes are essential — ½ inch and ¼ inch oil painting fitch, and one good fine sable brush for detail work. All you will need now are the colours and for a complete palette I suggest the following: olive green — jet black — yellow ochre — burnt umber — chrome yellow — burnt sienna — light grey — and white emulsion as the base white for all the seven colours. I personally prefer Gouache colours which are sold at any Art shop. Acrylics are easily available and are water based but a word of warning, they do dry fairly quickly and failure to clean your brushes as you go along can work out as an expensive business, though a retarder is available which slows the drying time. Ordinary students' water colours are fine. So there you have it. If you use acrylics, by the way, a large tube of white could replace white emulsion in the above list.

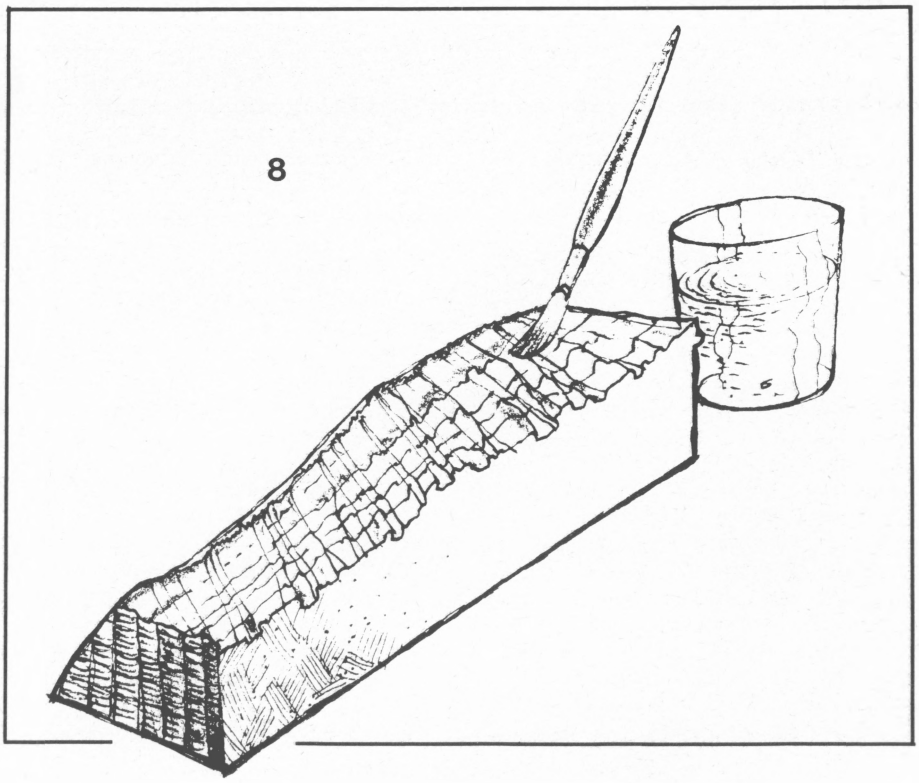
Before any colouring is attempted, may I suggest that the non-artistic readers of this magazine try the following experiment. Place a small dab of colour from each of the tubes around the edge of the plate with a small amount of white paint in the centre. Now on a piece of white card, begin with the olive green and paint a band of pure colour at the top, say ½ inch wide, then mix a little white with the green and blend it in, and then add a little more white until a range of greens appear from the pure colour through to a pastel shade. See drawing 7. Wash out your brush and then try the ochre, a band of pure colour then add white and so on. Now try a band of ochre and olive green, add white. Keep this exercise going with all the colours, adding a little chrome yellow and further down the mixes try a little sienna, you will be surprised at the dozens and dozens of different hues and



colours that emerge from these simple colours. They say there are a million shades of grey between black and white.... try it for yourself, don't take my word for it!

Having familiarised yourself with the blending and mixing of the colours, let us now turn to painting the rock face and its grassy cap.

Charge a brush with *water* and one *spot* of detergent and paint over the surface of the rock face (8). Take a small brush and mix a little burnt umber and sienna — with no white — just pure colours and run a thin line of this along the top, where the grass cap meets the cliff face. Let a little run and blend down the various crevices you have



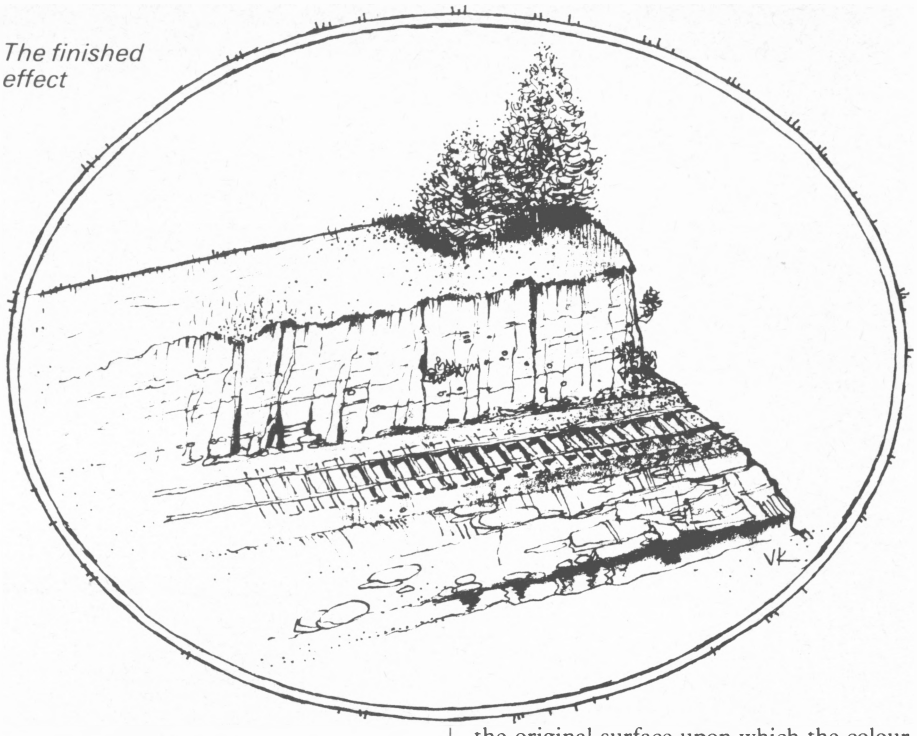
formed which is to represent the earth line, so familiar on this sort of terrain, before it dries. Add a little black and green, keeping the colours thin and watery. Paint over all the rock surfaces, greener toward the base. Let the paints run into every crack and cranny, tipping the model this way and that to encourage the paint to run. When you think you have fairly covered the surface stand it back on its base and leave well alone for some twenty minutes.

Now take your scrap of clean cloth, dampen it, and wipe over the surface of the modelled rock face. You should, if all is well, sponge off the surface colour leaving only that which has run into the cracks and gullies. Don't overdo this wiping off process — just enough to let the white undercoat come through. Remember you are not painting detail, it's already there. What you are in fact doing is to accentuate the three dimensional modelling and adding the weathering usually applied by Mother Nature. Leave everything to dry. Wash out your brushes — because that's it for the next hour or so.

One tip, if you are mean, like me, and don't like wasting things. Stretch a piece of cling film over the plate containing the colours which will save them from drying out.

Right, so you have now returned to the work in hand. Take a look at what you have so far achieved, it should look like the final drawing. In any event, if it doesn't simply wipe off all the paint that you can and start all over again, with no harm being done. This is the reason that I advocate the use of water colours which can be got rid of or heightened and enhanced without a lot of bother as opposed to other forms of colouring, with no smell or mess in the process.

The finished effect



It is interesting to note at this stage, and it gives me a chance to make a point. Water colours, may not be the beginning and end all of painting, but they have a number of factors very much in their favour, for example:- a painting done using this medium on a piece of say, Whatman paper (an expensive material by todays standards as it is made by hand) can, if the artist is dissatisfied with his/her efforts, be subjected to a bath, yes, washed off in a bowl, or bath of water to get rid of the offending colours that the artist has painted on. Not so with the other media and what is important it can be done with little or no damage, providing you are careful about the original surface upon which the colour has been applied... but I digress.

I am assuming that this stage that all has gone well and that you are reasonably happy with your artistic efforts.

Now you can take a look at the grass cap and by mixing a little olive green and white emulsion, attain a reasonable grass colour and start to paint in the 'cap'. A little olive green and chrome yellow, will give a change of colour to this area — grass isn't all one tone, and work over the surface up to the edge of the cliff/cutting edge. Details like foot paths, burnt patches, etc can be worked in at this stage and when complete, again leave to dry. Wash up and another evening has passed.

Bookshelf

NEW BOOKS FOR MODELLERS.

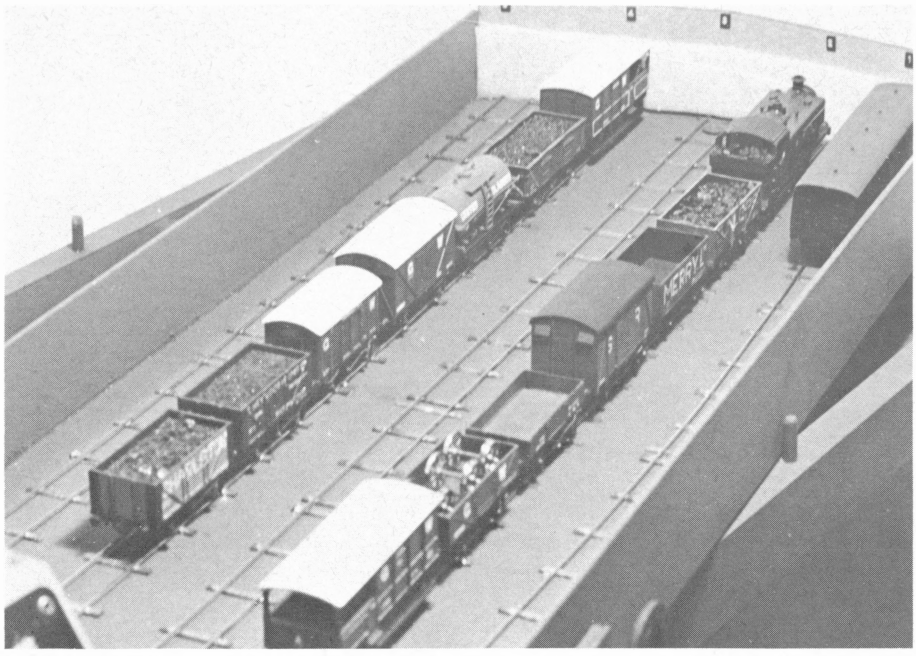
Bulleid Pacifics at Work, *by Col H.C.B. Rogers, Ian Allan Ltd, Terminal House, Shepperton, Middx. £9.95.*

Air-smoothed casing, Box-pok wheels, electric headlamps, welded construction, steam power reverse, chain-driven valve gear, and even a new numbering system were among many novel modern 'foreign' features which Bulleid brought to his Pacific designs for the Southern Railway as its last CME. Some of these features surprised conventional loco engineers at the time, yet the Bulleid Pacifics (which had a few faults in their day) gave superb service and are remembered with affection — and are ever popular in model form. This large format book is packed with pictures (including some real archive stuff) diagrams, text, specifications, and details which really tell you all you will ever want to know on the subject. It's a good read, very informative, and a 'must' if you are a Southern fan.

Manchester, Bury Rochdale & Oldham Steam Tramway, *by W.G.S. Hyde. £6.00.* **Building Britain's Locomotives,** *by James W. Lowe. £5.95. Moorland Publishing Co Ltd, PO Box 2, 9-11 Station Street, Ashbourne, Derbyshire.*
If you want to see how pretty a British provincial tramway company could be, look no further than the first of these books. Depot track plans, drawings, tickets, timetables and lots of archive pictures could give you all the visual references you need for a British steam tram layout of great character. It is a most fascinating glimpse of a company in the hey-day of tramways — hard to believe it closed down in 1904!

The second book is entirely pictorial, a tour of all Britain's great loco works in their prime, including Swindon, North British, Bagnalls, and all other great plants of the past. In the process, the book shows all stages of design, construction, machining, assembly, testing and overhaul of steam locos — all with fine archive photographs. This is a good book to have if you missed out on the steam age.

Susquehanna, *by John Krause and Ed Crist. £6.60.* **East Broad Top,** *by Ross Grenard and R.A. Kramer. £5.47. Carstens Publications, PO Box 700, Newton, NJ, 07860, USA. In UK from Victors, 166 Pentonville Road, London N1. (Postage extra).*
The two additional titles in the Carstens series of pictorial albums portray interesting contrasts in the American railroad scene. The New York, Susquehanna & Western or 'Suzy Q' as it was often called, is a short line of character — quite a big one in its day — which ran from upstate New York to Jersey City, operating single coach New York commuter trains until as recently as 1966. The book spans the years from steam to the present day, and will be helpful for anyone seeking a visual guide to a busy short line. It could be used to create a fictional layout, but charming as the real Suzy Q was, you won't find any



Bob Haskins' sector plate showing how much stock can be held in only 3ft of space. Note peg to prevent plate swinging too far over edge. Foam rubber strip acts as cushion buffer.

The end of the line

Bob Haskins makes a sector plate, the ideal form of fiddle yard for maximum economy of space.

With a Terminus-to-Fiddle Yard style of layout, much thought and careful planning is usually put into the design of the station and scenic areas. But once the line has vanished through the scenic break into the Fiddle Yard all pretence of planning often dies and the tracks just radiate into a parallel bank of over-crowded or cramped storage sidings. Sometimes there is not even that as some modellers never get beyond having a single dead end siding 'off stage', serving it by handling stock on and off as required.

If you have plenty of space then a normal bank of sidings (Fig 1) is undoubtedly adequate but if you really want to maximise the space available why not use a 'sector plate' (Fig 2)? In practice a sector plate fiddle yard more than doubles the siding space available. Having used both methods over the years my own personal favourite is the sector plate. It is not difficult to construct, it is easy to align the tracks in use, and the actual sector plate requires an absolute minimum of maintenance. My current minimum space layout has a sector plate occupying a space 3ft long and 18 inches wide (92cm x 46cm for metric modellers!). This provides comfortable accommodation for five tracks plus four loco/stock storage tracks at its entrance.

The framework for a sector plate needs to be strongly constructed using 2in x 1in timber for the sides and 3in x 1in timber for the end pieces. This box frame is further reinforced by 90° metal corner plates (sold in DIY shops) and a hardboard floor glued and pinned to the underneath of the frame.

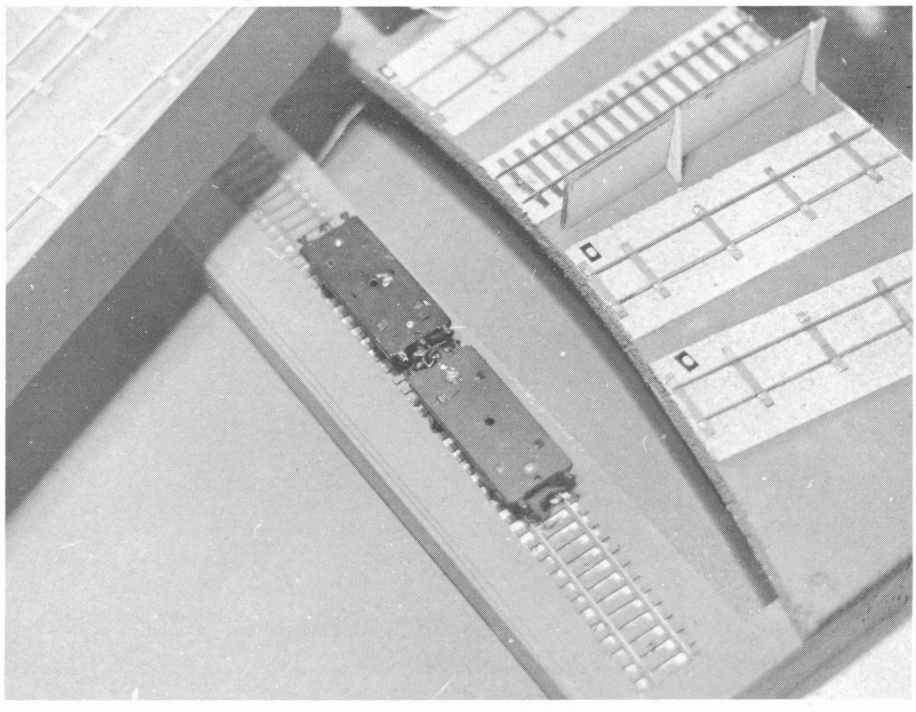
When constructing the basic frame it will be necessary to provide two bearers for the sector plate. At the end furthest from the entrance track, screw a piece of 3in x 1in timber at 90° to the end piece of the frame ensuring that the two top surfaces are absolutely level with each other. This is essential as this surface provides the main bearing for the sector plate deck. If these surfaces do not align properly then either you will have a large step in the rail height at the entrance or else a sloping fiddle yard—great fun if your stock has pin point bearings! Mark the exact centre of the horizontal piece of 3in x 1in timber and drill a hole to take a coach bolt. The size of this bolt is up to the individual but do make certain that its head will fit between the running rails without touching them and causing a short circuit.

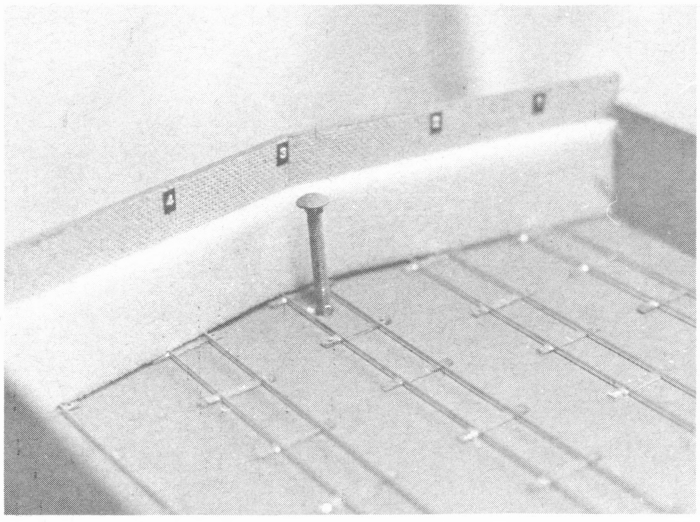
To construct the sector plate and loco storage area you will need a piece of ½ inch chipboard that is the same length and width as the basic frame—just as if it were to be a normal baseboard top. The amount of space you leave for loco storage at the entrance is of course up to you—my layout has a predominance of small tank engines so 6 inches is plenty.

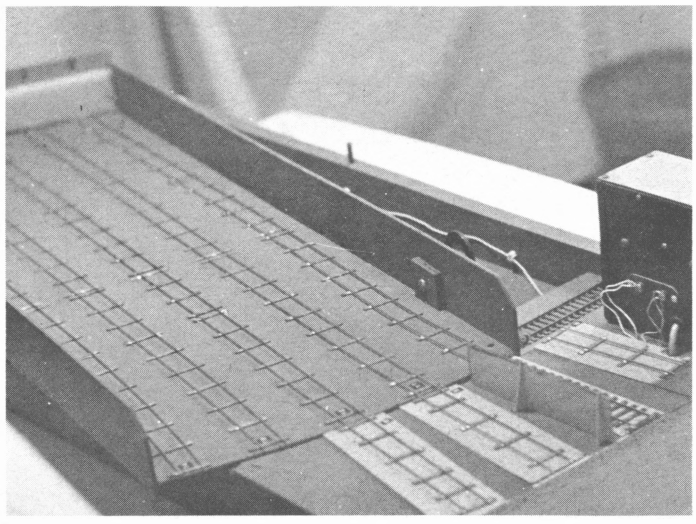
To make the radiused end, first mark out the radius using a pencil through a loop of string that is fixed to the point where the pivot bolt will be located. Just hold the string taut, draw the prescribed radius and then cut carefully along the line. A hand saw or jig saw will do. Don't throw away the off-cut as you will need it for the entrance and loco storage roads! Measure off the exact width that you require to accommodate the tracks and cut to width. Remember to measure from either side of the centre line or you may have fitting problems later on. The two off-cuts from this operation are then used as side walls to the sector plate deck.

Depending on how close to the end wall of the room the sector plate will normally reside, will dictate whether or not the pivot end needs to be radiused. On my own layout I grabbed every available inch for the

Sector plate deck support bearing on two old cast metal Hornby-Dublo wagon chassis and the length of flexible track mentioned in the text. Deck is lifted to allow photography.







Left: *Sector plate pivot pin/bolt. Note radiused end to deck to allow freedom of movement against the wall of room.* **Right:** *A general view of the whole sector plate built as described in the article. While hand-laid track is used here (with minimal number of sleepers) ordinary flexible track can just as well be used.*

scenic area which meant that I had no space available to accommodate an overhang and, therefore, the end was trimmed accordingly. A strip of hardboard 3 inches high can be pinned to the end as a stop. Cover the front with strip of foam rubber to act as a buffer stop. At this stage it is a good idea to drill out the hole for the pivot. Clamp the sector plate to the already assembled frame and having made sure that it is exactly centred drill the hole using the previously drilled hole in the support bracket as a guide.

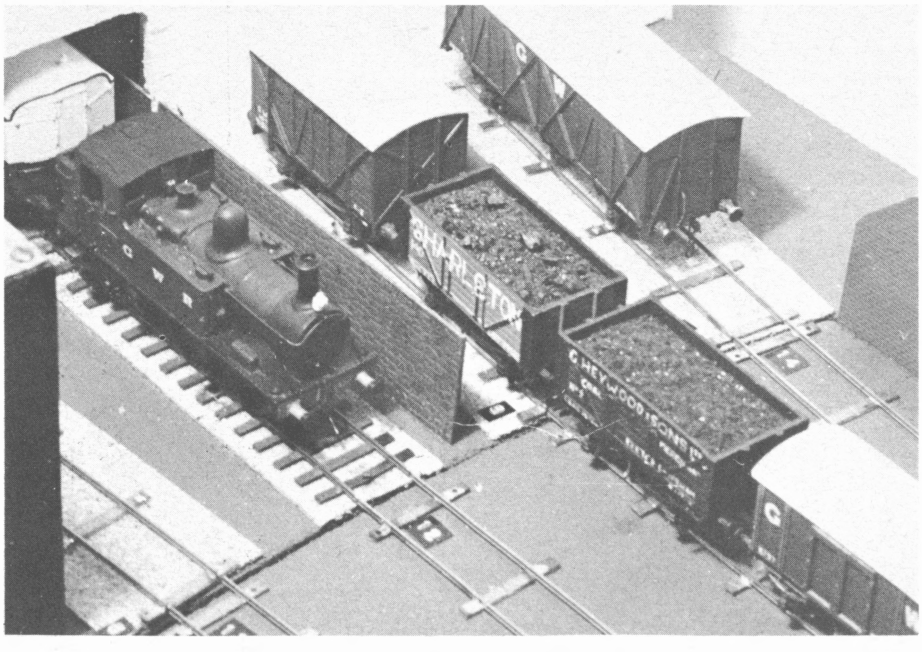
You can now turn your attention to the moving bearing required to support the traversing end of the sector plate. Several alternatives are open to you—I have seen some very sophisticated screw thread mechanisms used for this job as well as the other end of the scale where the sector plate deck has just had a wooden block mounted beneath it, sliding back and forth on a flat piece of wood. The block was, I would add, well lubricated with furniture polish and on occasions at the more hectic exhibitions, with spilt tea and ale. The method I prefer is to install a piece of 2in x 1in timber inside and across the side frames, pin a length of old flexible track to it and then support the actual deck of the sector plate on two old wagon chassis. Any fine adjustments needed to the rail height relationship with the entrance track can be easily made by inserting pieces of card as packing between the underside of the sector plate deck and the wagon chassis. In operational use I have not found it necessary to install any track alignment device, sight of eye being quite sufficient, but should you so desire then a small bolt and a series of sockets would suffice.

The trackwork can now be laid and I cannot emphasise enough the need for accuracy during this operation. There really is nothing worse than a sector plate that will only align on one track accurately. Time and care spent at this stage will save hours of anger and frustration later on. Start by laying the centre road exactly over the centre line of the sector plate. Cut a distance gauge from an old piece of scrap plastic card or stiff card and then, using the gauge to obtain equi-distance track centres, lay each track working away from the centre track. My own sector plate is laid at 2½ inch centres I still have ample room for 5 tracks.

At the radiused end where the sector plate joins the entrance track it is worthwhile to just lightly chamfer the inside edges of the rails—a couple of light strokes with a file is usually quite sufficient—and it makes for a much smoother transition from one surface to another by the rolling stock. The electrical break in the sector plate tracks is best located at the half-way point. This allows two rail-cars or auto-trains to be held on the same track without difficulty.

If possible do try and use a multi-position selector switch for the sector plate—mine was salvaged from a defunct gas central heating control box. Using such a switch does mean that having selected a track you know that all the others are automatically isolated. Normal ON/OFF switches are used for the four loco storage roads and also for the entrance track.

Entrance to sector plate showing retaining wall to provide scenic continuity. Rolling stock is a mixture of scratch-built and kit-built, plus an Airfix auto-coach. The 1400 loco is Airfix, modified as described last issue and carrying a lamp on the upper bracket.



Depending upon the location of the Fiddle Yard you may find that people standing in front of the scenic section can see through the scenic break and into the yard. Having endeavoured to produce a realistic scenic effect, it is a pity to destroy the illusion in such a manner. If a tunnel mouth has been used, then provided it projects for at least 4 inches no one, unless looking directly along the tracks, will see into the fiddle yard. However, the exit-via-a-tunnel theme really has been done to death and in reality not many branch terminals exited straight through a mountainside or cliff face. An overbridge about ½ inch in front of the scenic break is a less obvious ploy, and whilst on the subject why mount it at 90° to the track?—an angled overbridge helps mask the exit hole in the back scene even better. Dense undergrowth and a copse of trees is another method that can be made to look very authentic for many of the rural branch lines ran through quite dense avenues of trees.

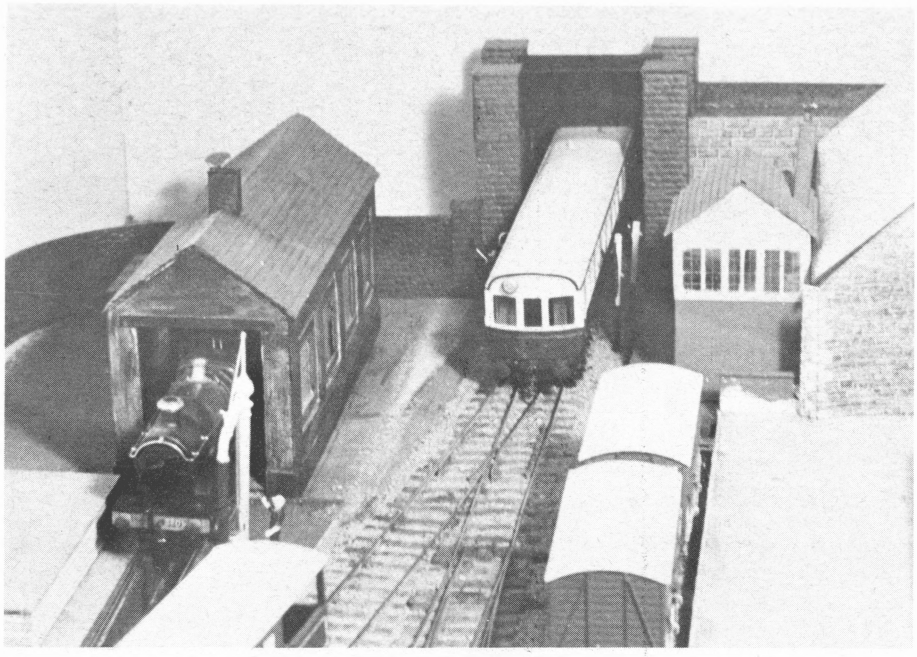
Whichever method you decide upon I would strongly advise that the entrance track to the fiddle yard be ballasted in

common with the scenic part of the layout. The addition of either a retaining wall or rock face placed beside it to stop the eye seeing the adjacent storage roads is quite a useful technique.

So there you have it—a sector plate built on a separate module baseboard that can be coupled to any layout using the same track centres. Having spent the majority of my working life frequently changing residences I have only just come round to the modular style of baseboard construction. My present sector plate will serve me for quite a while irrespective of where I happen to be living. All my former 'permanent' layouts resulted in a demolition job at the time of home removal.

In conclusion, my thanks to all the numerous people in various clubs and at exhibitions up and down the country whose ideas and helpful comments contributed to this sector plate being built. I cannot claim all the ideas as original—most are a composite of experience and clubroom chat at one time or another.

Photographs by John Ruffle



Scenic entrance to the fiddle yard sector plate, using a road overbridge. Scenery and structures are incomplete as the layout is still under construction.

Fig 1

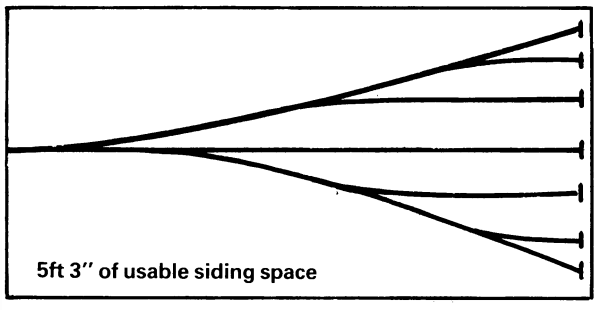
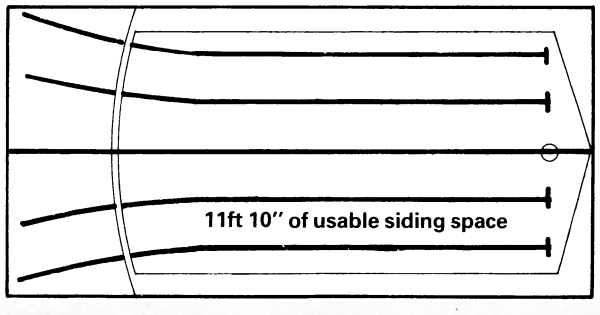


Fig 2



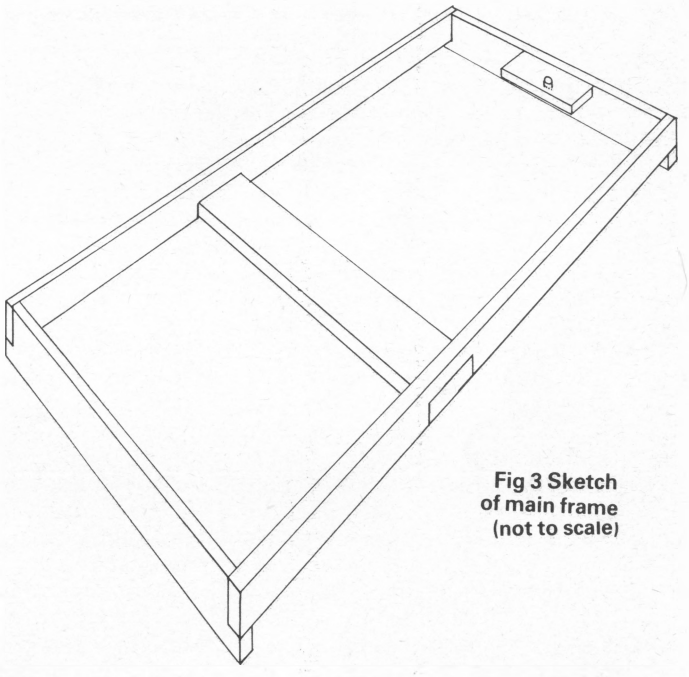


Fig 3 Sketch of main frame (not to scale)

Bookshelf

from page 120

models at all sold in Susquehanna colours, nor even any decal sheets. But if you want inspiration for a diesel age line running single car trains into a big city, and short freight trains too, this is a good book to look at.

East Broad Top was another short line, mainly serving big coal mines in Pennsylvania, but serving other industry as well. It still runs, for part of it was preserved after closure in 1956, and you can still ride the line. EBT was unusual in the east for being narrow gauge — 3ft — necessitating a change of trucks when standard gauge cars and hoppers were worked, and this was a famous feature of the line. It was, and is, an all-steam line, except for a single Brill motor railcar used in the 1927-53 period. Track plans of major depots are incuded in this book.

America's Railroads — the Second Generation, *by Don Bal. Patrick Stephens Ltd, Bar Hill, Cambridge, CB3 8EL. £16.95*

We recently reviewed (and commended) *America's Colourful Railroads,* and now we have its companion volume which continues the story to the present day. It also has a British publisher. Well, this is a superb book, coffee table size in format, with more than 280 big colour pictures, informative captions and erudite text, giving a superb coverage of railroading today (and the last 20 years come to that) with its colour and drama in the diesel age. Steam is not forgotten, either, and the last outposts are included. Because of the colour shots, and the settings, it is a valuable visual reference for modellers and collects together rather more than you would ever see in several weeks of intensive train watching in the USA itself

BR Standard Steam in Close-up, Vol 2, *by Tony Fairclough and Alan Wills. £5.95.* **Named Locomotive of British Rail,** *by Michael Oakley. £2.95.* **Nothing Like Steam,** *by B.W. Aynsley. £2.95. D. Bradford Barton Ltd, Trethallan House, St Aubyn's Road, Truro, Cornwall.*

First of these books continues the good work of the first volume. Masses of good pictures show the salient features and variations of the various BR steam classes, an extremely useful reference book for modellers. BR Pacifics, Class 4 4-6-0, Classes 3 and 2 2-6-0, Class 2 2-6-2T and 9F, are all featured in this volume. The second book illustrates examples of all current named diesel and electric classes, plus some of recent years

It takes about an evening's work to enhance your 'Royal Scot' model. Note in this view the re-positioned BR totem and the crushed coal added on the tender.

Extra detailing for the Airfix 'Royal Scot'

A few simple alterations are all that is needed to make the Airfix model even better: Richard E. Gardner shows how to do it.

When the Airfix rebuilt 'Royal Scot' class locomotive became available it was universally acclaimed by the model railway press. Even without any attention in the way of extra detailing it is a very handsome model which fully captures the character of the original. There are however some people who cannot leave a new model alone, and I'm one of them! For the sake of a evening's work the Airfix *Royal Scot* can be transformed into a model resembling a fine handbuilt replica.

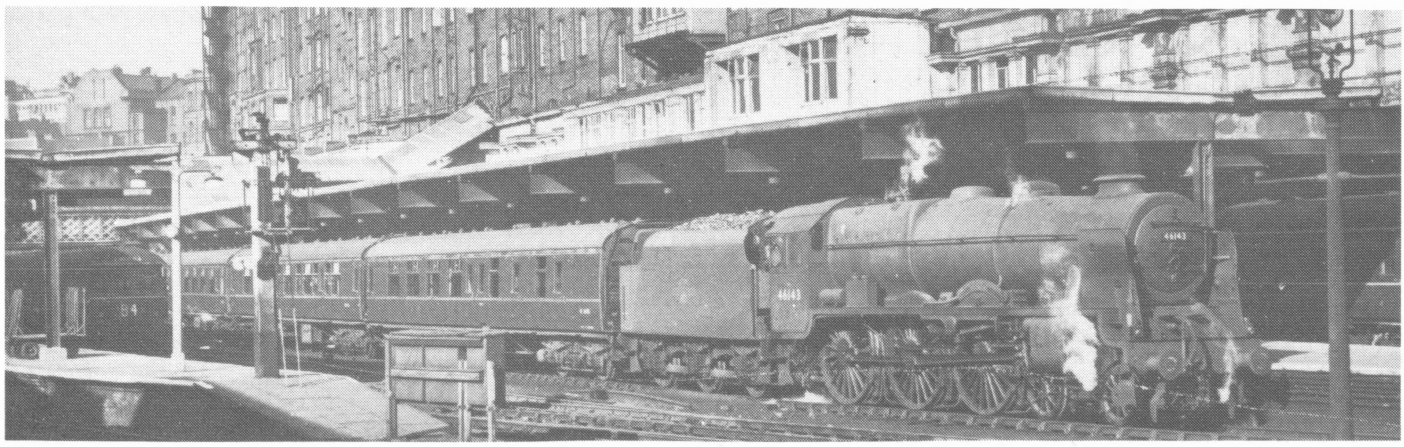
The alterations described here were carried out to the British Railways version of the locomotive but there is no reason why the same cannot apply to the LMS version as well. Only the livery and deletion of the smoke deflectors differentiates the two models. Before embarking on any model project it is best to arm yourself with plenty of reference material. There is no shortage of photographic reference material relating to the 'Royal Scots'. Dozens of railway picture albums show the locos working throughout their lives on the LMS and LMR of BR. Once you have decided on the particular era that you are representing on your own layout it is easy enough to find a photograph showing an appropriate loco.

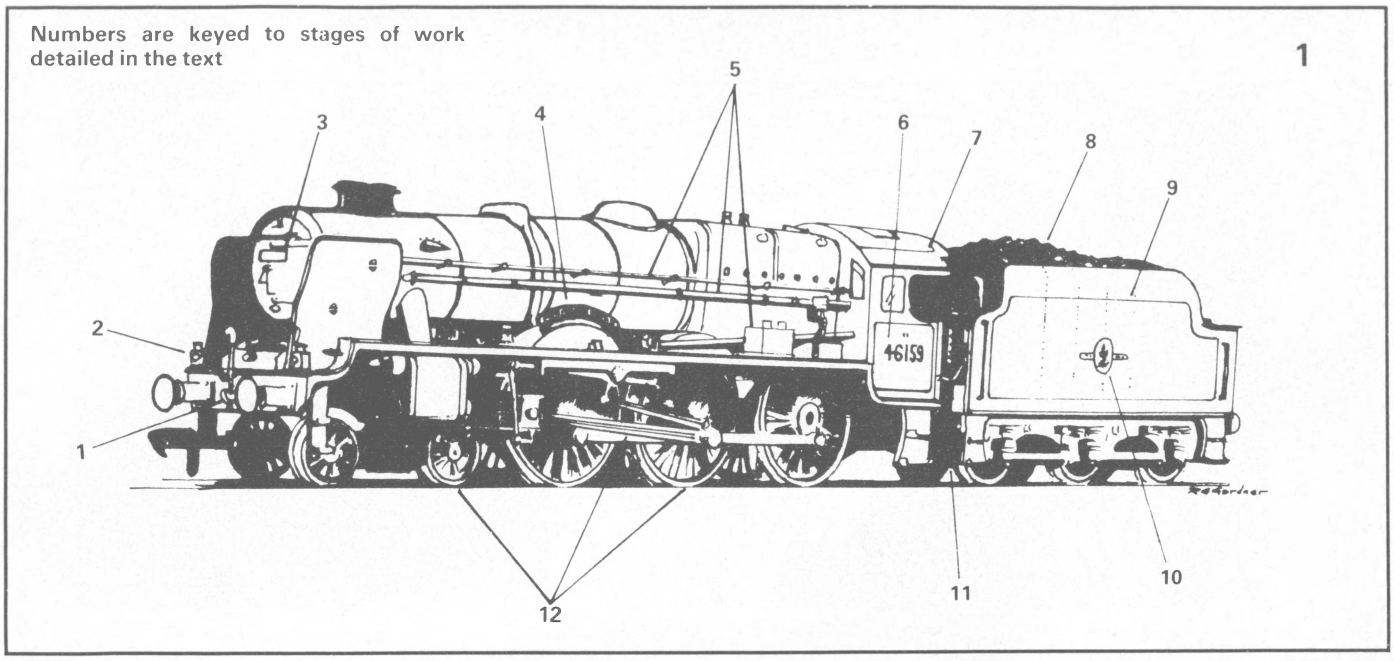
Before describing the work involved in this modification it is as well to stress how important it is in railway modelling to be consistent in keeping to the correct time span for your models. As few young modellers will be able to remember actually seeing steam trains in regular service they have to rely on published information. There is a tremendous range of reference material on sale but there is also much confusion caused by some model manufacturers, and some steam preservation societies, painting locos and rolling stock in incorrect colours. Though there are often good commercial reasons why these actions are taken, it must result in layouts being built which have unrealistic combinations of stock. The *Royal Scot* chosen for this article is finished in the livery carried from 1957 until the early 1960s and runs with Airfix Stanier corridor coaches in BR lined maroon. If the coaches on your layout are of the 'blood and custard' variety then ensure that the older BR emblem is carried on the tender of the locomotive. The standard maroon colour scheme was introduced for coaching stock at the same time tha the more attractive BR crest appeared.

Let's look at the steps to be taken to improve the model.

(1). The buffer beam is a separate moulding and should be unclipped from the main body of the loco. If it is intended to retain a coupling on the front bogie for automatic coupling and uncoupling and running tender-first with rolling stock then only a hook should be fitted to the centre of the buffer beam. A suitable plastic hook can be obtained from an Airfix wagon kit. A small hole drilled in the centre of the beam will give added strength. If the automatic coupling is removed then a full screw-coupling can be fitted. Very realistic scale couplings can be

Study published photographs of the 'Royal Scot' loco of your choice. For example, No 46143, 'The South Staffordshire Regiment' has an extra pipe between the two leading splashers and a cylindrical AWS housing forward of the cab, typical detail variations. This is Birmingham New Street in 1960 (J. Sharpe).





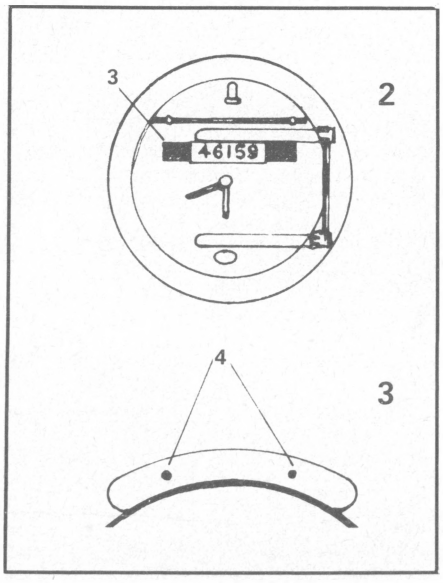
obtained from specialist model shops. A coat of red paint will remove the 'plastic' look from the buffer beam. Heat pipes may also be added, using guitar G string or commercial items.

(2). Small lamp irons can be added from plastic rod or wire. If the locomotive is going to be used for express passenger trains most of the time then headlamps can be affixed above each end of the buffer beam. Scale lamps are produced by several firms including Springside Models and Kenline. These feature tiny jewelled inserts which reflect the light and give the appearance of real oil lamps when the locomotive is in motion.

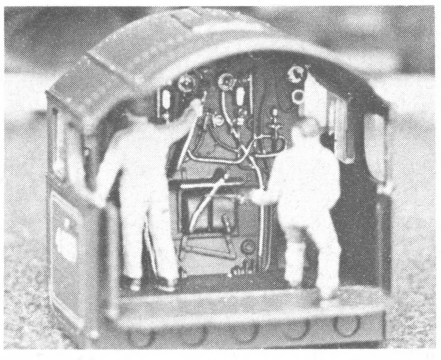
(3). The elongated number plate moulded on to the front of the model's smoke-box door should be trimmed down to the conventional length as shown in Fig 2. Remove the shaded areas after first gently prising the smoke-box door away from the boiler which has been moulded separately. A craft knife is the best tool for the job so as to avoid damaging the parts concerned. A new metal engraved plate can be added before pushing the door back into position. The handrail should be painted black at this stage.

(4). The name-plates as already fitted to the Airfix model are most realistic but the addition of engraved brass plates is well worth the modest outlay involved. Engraved name and number plates can be obtained from the King's Cross Models range and cover just about the whole class of locomotives. They come in a small packet with full instructions and ready painted. They do have to be cut out very carefully indeed, however. Unlike classes which have straight nameplates, all the plates for the Scots are curved and have badges attached above the centre. Trimming the thin brass sheets is a task which calls for a lot of patience. One over-zealous snip with the nail scissors can end an evening of modelling enjoyment! The secret is to make many small snips around the edge of the nameplate and then to use a fine file to reach the final edge of the design. If you trim too close to the edge you will almost certainly distort the plate and cause the black paint to flake off between the letters. To fix an alternative name plate to *Royal Scot* it is best to remove the existing plastic plate. Fig. 3 shows where the plate can be prised away from its mountings. The new plate can be cemented with an impact or resin glue over the base mouldings as drawn. With so many alternative brass nameplates available it would seem a shame not to personalise your own 'Scot'. I chose No 46159 *The Royal Air Force.*

(5). The large number of separate mouldings on the Airfix model contribute to the delicate feel and authentic appearance, but to be strictly accurate some of the items need to be toned down. The handrails should be painted black next to the smokebox and green alongside the boiler. The pipework immediately below should similarly be painted green as should the footplate box above the rear driving wheel. If the reversing rod is unclipped then it is possible to paint orange lining on the splashers. This has not yet been carried out on my loco, but has been done on the other locomotives to good effect.



(6). If an alternative name has been chosen then the number on the cabside will have to be altered. The easiest method is to use the rub-on dry print transfers produced by King's Cross. Alternative waterslide-type transfers are available from Kemco and SMS. Retain the '46' of the Airfix number; it is best to carefully paint out the green panel with a matching shade of BR green, rather than add the new number complete.



The cab makes a nice model in itself. Here it has been detached for internal painting, with crew figures adapted from Airfix Lutfwaffe mechanics.

(7). The entire cab of the *Royal Scot* model is a separate moulding though one would never guess to look at the body. If the cab is unclipped and removed the interior backplate details can be painted at ease. The relief moulding is first class but without the details being picked out in copper, white, and black/silver, this tends to get lost in the gloom of the cab. Fine brush painting of the pipes in copper and the instrument faces in white will look very realistic. The edging of the glazing panels can be painted matt black. If desired suitable crew

Richard Gardner's model after it was given the 'super detail' treatment described here. Note new number, BR totem and brass number plate as 'The Royal Air Force', 46159.

members can be added at this stage. Loco crew are produced by Merit and others but a more original selection can be obtained from the Airfix Luftwaffe set. These figures are the correct 00 scale and one packet will produce dozens of potential model railway crews. The overalls are correct without modification but some hats will have to be removed. This same set will give several characters suitable for use around the loco depot.

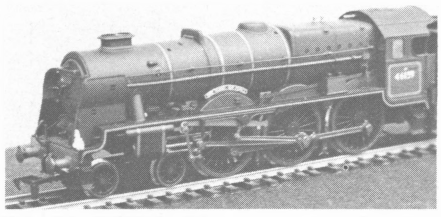
(8). There is no plastic coal available quite as realistic as the real thing! A small piece of coal bound up in a rag should be tapped with a hammer to produce enough scale coal to last a lifetime. Cover the tender bunker with Bostik or similar contact adhesive then sprinkle the smallest pieces of real coal around the top, remembering not to use pieces that are too big or likely to foul the loading gauge. All loose coal should be removed from the tender once the glue has had time to set hard.

(9). The lining can be replaced with finer transfer if desired. The boiler bands should have a black stripe between orange bands but owing to the various details on the boiler it is not too easy to get close enough for rub-on transfers. Waterslide bands by Kemco or SMS can be used but on my model only the tender lining has been treated.

(10). On the BR version of the Airfix *Royal Scot* the 'lion on wheel' (pre-1957) emblem is affixed too far to the rear of the tender sides. The correct position is mid-way along the sides. A matching patch of green should be applied over the existing emblem and then new transfers can be fitted. Methfix produce very accurate transfers and these cover all BR sizes and periods. If a small patch of green still shows up against the rest of the tender then do not be too worried as the same thing could often be seen on the actual locomotives. If you are finishing your loco in an ex-works condition then a coat of semi-gloss varnish will almost certainly remove any trace of the green patch. Varnish is a good idea in any case to protect the lining and numbering transfers.

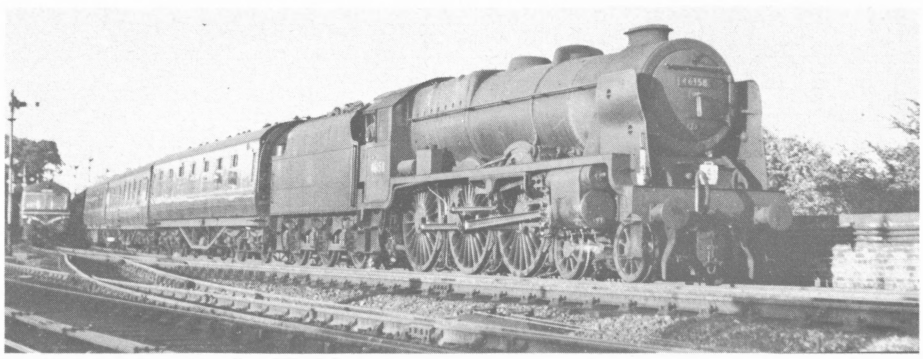
(11). The gap between the loco and powered tender is the only feature of the Airfix model which spoils its appearance on a scale layout. Providing you have reasonably gentle curves then the gap can be closed up considerably, replacing the metal drawbar with another one made from metal, thick plastic card, or a paper clip as described for the 4F in the January 1980 issue. If on the other hand you run your trains on set-track by Peco, Hornby, Lima, Airfix or another manufacturer, it is best to leave the gap as it is. It is no use having a scale gap if the resulting model cannot operate fully.

(12). The wheels as purchased have bright plated tyres which look fine for a preserved or ex-works model but are a little too bright for a loco representing the normal in-service prototype. Reference to colour photographs will show that most steam locomotives ran with wheels and motion in a greasy-oily-browny look. Repainting the edges of the wheels with a mix of silver, track colour and black improve the appearance no end. The connecting rods and valve gear and diluted track colour. Do not overdo this repainting or you may cause the motion to seize-up when moving along the track. Keep paint away from all joints and use the smallest possible brush.



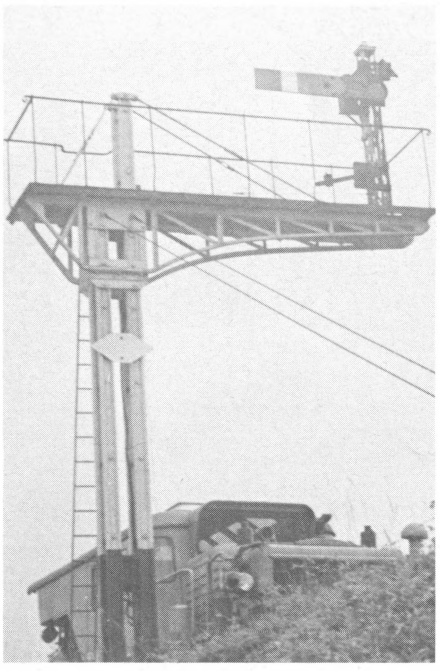
View above shows 'express' lamps added above buffer beams (painted white); the painted boiler and smokebox handrails; added nameplate, and blackened wheel rims and motion. Lining could be added on the splashers but this was inconspicuous (and sometimes omitted) on the real thing, as can be seen in prototype photos.

A fine view of 46158 'The Loyal Regiment' on an express at Scarborough on August 8, 1961, showing useful detail. This loco also has the AWS air cylinder on the footplate forward of the cab (right side only), a simple addition to the model. Check your subject as not all locomotives were so fitted. Note duty number '91' on paper stuck to a metal board on the centre lamp iron. Regimental badge is on splasher (N. Skinner).



Basic Signalling: 5

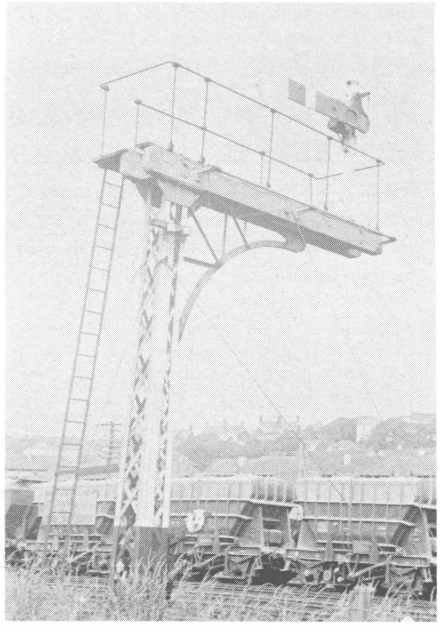
Dave Larkin deals with sighting difficulties and bracket signals.



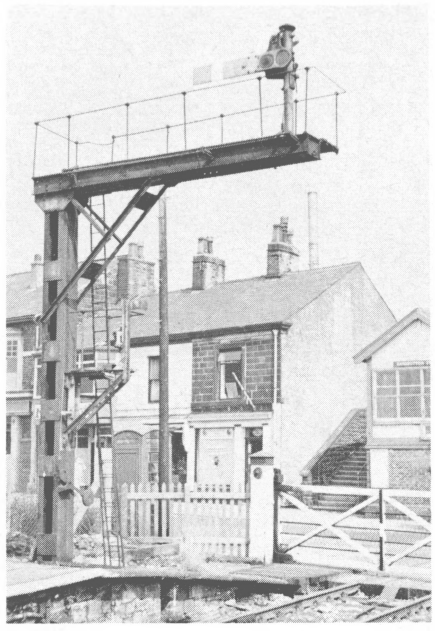
(1) A standard SR-built right-hand bracket with Stop arm. It is protecting the exit to a siding, and the tamping machine seen below is in fact on the siding. Note the two bracing wires running from the centre of the signal to the ground. Taken at Cuxton, Kent

Last time we looked at two ways of overcoming sighting difficulties, tall co-acting repeating signals and banner repeaters. These are chiefly used when the line ahead, although probably straight, has some obstruction like a bridge which prevents the driver from seeing the signal. But what about curves? Here it becomes necessary to bring the signal arm out over the track so that the driver can see the arm that much earlier. Figs 1A and 1B demonstrate this.

Note that the curve is left-handed. Because, certainly in recent years, the majority of locomotives are left-handed drive, most companies tried to place their signals on the left-hand side of the line. Thus, if the signal in 1A was right-hand side of the line, it would be seen at a distance and a bracket would be unnecessary. However, a signal in such a place would interfere with the view of the driver of a train going in the opposite direction so, under normal

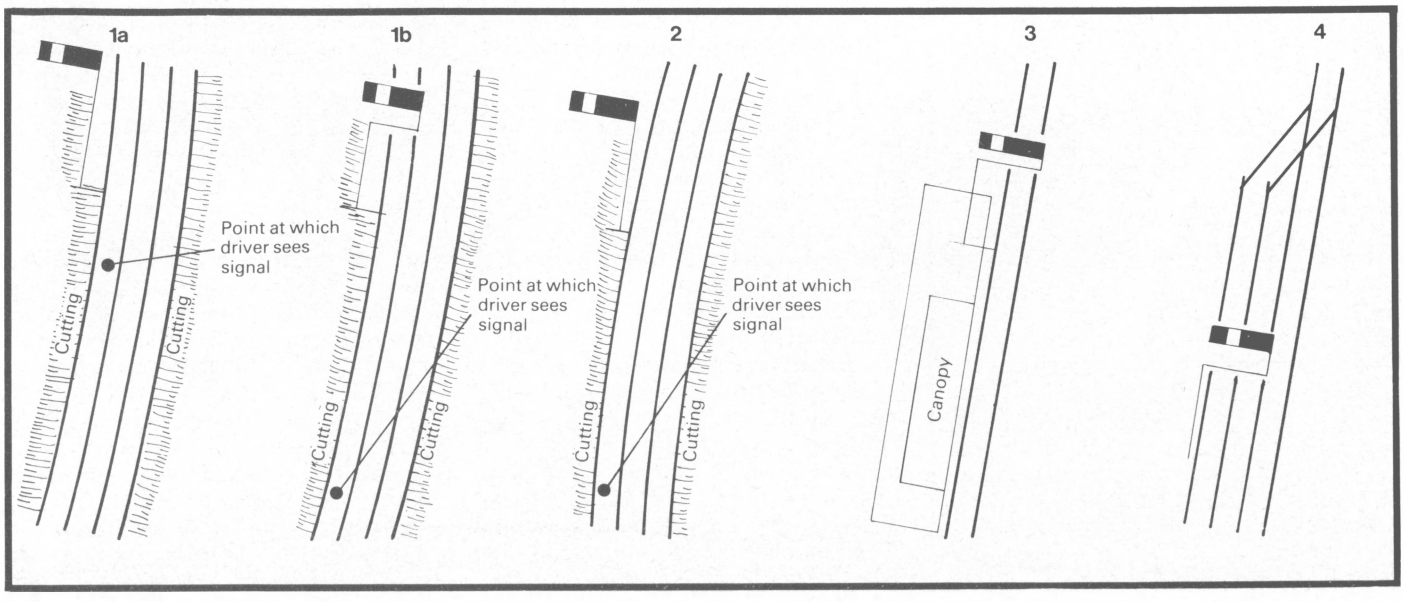


(2) An LMS-built right-hand bracket with lattice main post, thus dating it to the 1920's period, with Stop arm. As in photo 1, it is protecting a siding. Note the different arrangement of guy wires.



(3) An LMS-built bracket of a later period than that shown in photo 2, this Stop signal also had a bracketed goods arm or ground disc, which has now been removed. Taken at Ramsbottom, Lanc.

(4) A third form of LMR bracket, but this time probably post-nationalisation, is this example with tubular main post. The Goods Stop arm has been mounted especially low to bring it into level with the drivers eye because of background distractions. Taken at Ayr, Scotland



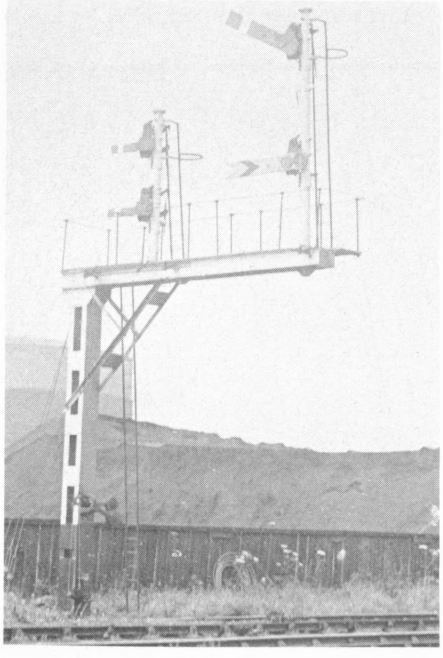
(5) This ex-LMS tubular post right-bracket is a Section Signal and thus has a Distant arm below the Stop arm. The signal controlling exit of the siding over which the bracket is placed has also been mounted on this post. Taken at Blackburn, Lancs.

circumstances, a right-handed bracket signal would be used.

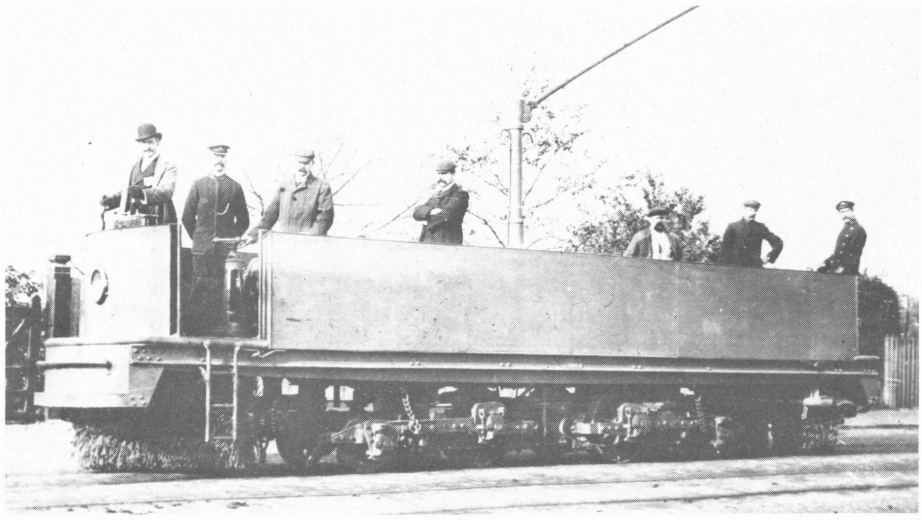
What about right-handed curves? Fig 2 shows that a bracket signal is not needed. We are talking here about relatively shallow curves. In cases of extreme curvature, a bi-directional signal could be used (to be dealt with later).

There are a number of circumstances where a bracket signal can be used on straight track. Fig 3 shows a station platform with a canopy almost to the edge of the platform. To enable the driver of an approaching train to see the signal in good time, it is bracketed out over the track. One of the photographs taken at Ramsbottom, shows a good example of this situation.

(6) Also a Section Signal, this example spans a siding from which there are two separate routes, hence the two Goods Stop arms. Taken at Workington, Cumb.



The Age of the Tram



Not all trams carried passengers, for there were also service cars, often converted from passenger cars, but sometimes specially built, This is a snow-broom car of Lowestoft Corporation Tramways, posed with its crew in 1903. It's job was to sweep snow, ice, leaves, or mud from the tracks.

A look at the modelling potential and what's available to get you started.

Tram, tram car, street car, tramway, interurban, electric traction, Uberland-Strassenbahn, or just simply Strassenbahn are all terms variously used for the same mode of transport. The German word for it — Strassenbahn or 'street railway' — is, perhaps, the most descriptive. The tram was a piece of 19th Century technology, like the railways which overshadowed them in commercial importance. Trams used railway principals to provide clean and efficient mass public transport mainly in urban areas, but also in some quite rural locations, and there are still some countries where these ideas haven't changed greatly. Great Britain, unfortunately is not one of them, and in the way these things seem to be ordered, most of Britain's tramway systems were swept away with almost unseemly haste between the late 1930s and early 1950s.

So a whole generation in Britain has never had a chance to ride on a tram and the only outposts of this form of transport are the Blackpool seafront trams, Volks Electric Railway in Brighton (really a tramway on a reserved track) and the superb Crich Tramway Museum in Derbyshire where preserved trams still run in a wonderful setting.

In Britain, trams gave way to trolley buses and buses (more convenient they said), while in USA trolleys (American word for tram) were displaced by almost universal ownership of private cars by the mid 1950s. Once there was a huge network of interlinked city tramways and 'interurbans' but almost all are now gone with remnants remaining in some few US cities. You'll get an idea of what the American town scene was like with trolley cars if you watch the old Laurel and Hardy and Harold Lloyd movies where trolley cars are invariably somewhere in the picture and sometimes get involved in the plot (with all those squashed Ford Models Ts).

In Germany, Austria and several other European countries, trams and tramways are still very much part of the daily city scene. Maybe nobody had ever told them trams were *passé*. So one of the joys of visiting cities like Nürnberg and Frankfurt is the pleasure of being able to ride a tram and to sample the frequent, inexpensive, and efficient service offered. In these cities the trams run more or less as they always did all over the world, the tracks threading their way down the main streets, a major tram terminus outside each main station, some reserved trackage in places, routes to the suburbs and even a few quite long distance runs which are almost what Americans would call 'interurbans'.

It is true to say that much modelling activity is influenced by what we see and as trams are no longer commonplace in Great Britain there is probably not so much tram modelling activity as there could be. Most British tram models seen at exhibitions are of the large scale scratch-built variety, running in city street scenes. They are great crowd pullers but they are a fairly specialised form of modelling, brought up to a fine art by some groups and clubs. For example, the tram modelling group of the Carshalton and Sutton Model

Railway Club have a superb 0 gauge tram layout to which they have harnessed Airfix's Multiple Train Control (they call it Multiple Tram Control!) so that short interval running is possible just like the real thing without any need for extensive sectionalising of the track which has always been necessary in the past for running intensive model tram services. This imaginative use of MTC shows an important application of the modern 'independent' control systems now available, and the club have provided more details on another page since the principals involved will be of importance to anyone modelling trams in H0/00 scale or bigger. Indeed, use of any of the 'independent' control systems to run trams is quite a breakthrough which could well give a boost to this aspect of the model rail hobby. If you are persuaded to start tram modelling after seeing this issue then you can virtually think in terms of MTC, Zero-1 or HM5000 from the start. A major bonus is that most tram models, even in H0/00 size are big enough to take the chip or module with ease and even if a power car is too small, there will be room for it in a trailer car. So newcomers to the model tram field might just as well think in terms of 'Multiple Tram Control' and forget about sectionalising track in the old way. Incidentally trams in N scale can't really be given this treatment yet as none we've see have been wide enough to take a module.

Given that there are no real problems with wiring or electrics, you can get started with ease on a city tramway if you wish. If you still don't want to get involved in this new technology of MTC, etc, you can still run model trams on the conventional 12V DC system. If you choose a country tram layout dealt with on another page, you probably won't have short interval running so that conventional systems will involve no more electrical complication than a small railway layout.

Which leads to the diversity that trams offer the modeller. You may conjure up an image of crowded city streets with double decker cars and complicated trackage, since that is the sort of tramway most widely illustrated in books. Not everyone will want the complication of scratch-building or kit-building that is required for this sort of layout. If you don't there is much, much more on offer. Colin Withey's articles on the next few pages cover the suggested alternatives which will make tramway modelling as interesting as any conventional model railway layout. For although all the ready-to-run tram models in N and H0 known to us are of overseas prototype, and thus all single-deckers, there were plenty of single-deckers running in Great Britain too, sufficiently so for a little masquerading to be in order on a freelance line set in Britain. To take just one example, the Mehanotehnika street cars are sufficiently 'look alike' to provide the stock for a Kinver Valley Railway type of country tramway in a British setting — the Kinver stock all looked too American to be true.

Tram watchers could enjoy this sort of sight, mainly on Sundays when heavy track maintenance could be done. This old Leeds car, used by the Permanent Way Dept (and so marked) hauls track sections from the works depot in 1946. In some European cities you can still see this sort of scene (C. Carter).

There were hundreds of tramway systems all over the world, some very small in terms of route miles and stock. So as with American short lines, a small tramway layout lends itself to freelancing safe in the knowledge that your own set-up will not be unlike a tramway which could well have existed. Adding freight traffic to the line is the big thing to go for if you want to pack lots of action into a small layout. Passenger cars running on a fixed interval service can, it's true, become a little too predictable and indeed even monotonous. Add some service cars — sweepers, line maintenance, etc — and you have more variety. Throw in some factories which are served by bringing freight stock down the tramway tracks and you have the recipe for a compact layout offering the best of both worlds — short (in length) passenger carriers and interesting freight working to break up the passenger schedule. Our new project layout in this issue shows the idea in action (or will do so later on), and Colin Withey also has much more to say about this. If you prefer to collect tram models in varied liveries, how about a Crich-style preserved 'line'? Finally, if a tram layout doesn't appeal as such, then trams can always be added either as a cosmetic or working addition to your model railway layout, if only as a piece of trackage or an interchange track behind your main station. So don't dismiss what we have to say about trams in this issue, even if you are convinced that trams will never appeal to you as a modelling subject!

Most readers, at least for a start, will

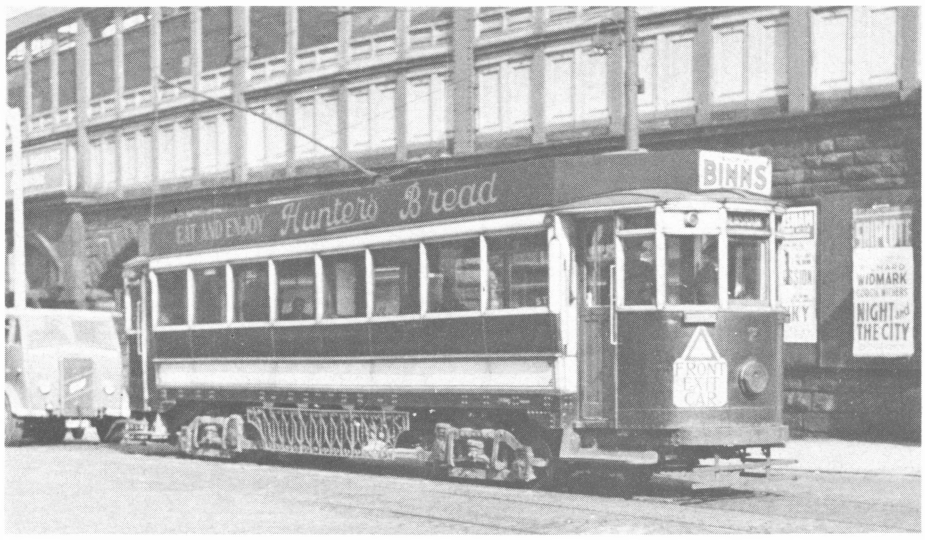
This is a scene on the 0 gauge tram layout of Carshalton and Sutton MRC, with two single-decker passing. Everything is scratch-built here, but would be easier in 00/HO where mainly building and scenic accessories can be used for the street modelling.

be interested in ready-to-run tram models and the selection here is quite generous considering that tramway modelling is quite a minority subject. Colin Withey deals with commended kits and accessories for British prototype models in his article, so here are the other models and ranges you'll find worth looking at.

Mehanotehnika: Cheapest of all HO scale ready-to-run trams are the Birney street cars produced by this Jugoslav manufacturer (AHM in USA). These are American prototype but the originals were also exported and there were British single deckers not unlike them. Several colour schemes, including New York and fictitious 'City Tramways' are produced. The UK importers are Eastern Models, 29 The Knole, Hayes, Bromley, Kent, and a SAE to them will bring price and colour details. Just now released, too, is a modern Boeing tram as used currently in USA and exported elsewhere.

LGB: For big scale (1:22) LGB offer a delightful range of metre gauge with old and new AEG/Siemens cars in various liveries, plus maintenance wagons and even street accessories. Also available is a steam tram loco with which the ordinary LGB passenger and freight stock can be used. Beatties branches or specialist supplier Ecos of Bournemouth are where to see the models. They run on standard LGB track.

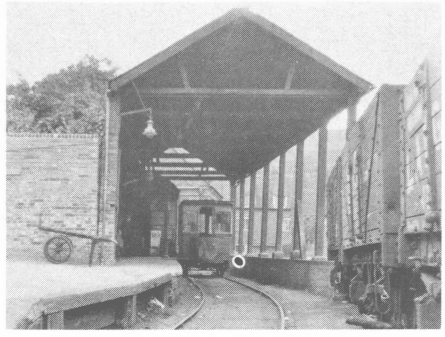
Arnold: N gauge is not so well served for trams. The only ones know to us are the MAN 1909 vintage vehicles (power car and trailer) delightfully reproduced by Arnold. This firm also produces paving sets for making up street trackage, plus the poles for (dummy) overhead wiring. They also make a Class 169 loco which can be used as a tramway loco. The UK Arnold importers are Model and Tool Supplies Ltd, 604 Kingston Road, London SW20 (SAE for price details). The models are available in SVB and pre-war DR colours (for use on the Berchtesgarten line in the 1930s). Other manufacturers, we hope, might realise that N gauge trams offer great potential yet to be exploited.



Above: *August 18, 1950, a Gateshead car waits at the station to pick up passengers. Single-deckers of this general type were among the most common trams, though double-deckers were widely used in Great Britain (J. C. Gillham).*

Roco: Roco produce modern (1963 plus) DüWag cars in HO. These are the modern articulated type still widely seen today in Europe. The basic set (power car and trailer) comes in various actual colour schemes including those of Dusseldorf and Karlsruhe. Any Roco stockist, including Howes, Victors, etc, can supply and the UK importers are Riko Ltd of Hemel Hempstead. UK price around £26.

Liliput: They produce HO models of the type of tram car built by Fuchs of Heidelberg in the 1942-44 period, again a power car and trailer sold singly or in pairs, UK price around £26. Vienna, Graz, Stuttgart, Munich, Linz, Berlin, and Karlsruhe colour schemes are available. Any Liliput stockist should be able to supply, but if you can't find these models around write to the importer Liliput (UK) Ltd, No 4 Factory Unit, Station Yard, Bala, Gwyned, North Wales.



Rivarossi: They have the Edison tram car in HO. This is basically an American design, widely exported, and the Rivarossi trams are modelled on versions used in Milan. A full street trackage system and trolley wires are also produced. Pick-up is from over head just like the real thing. These are nice models with a complete boxed layout (street trackage and poles included) for around £75 (at least that's a price we've seen). A.A. Hales Ltd are the UK distributors. Any Rivarossi stockist should be able to supply.

Gogtrams: These West German models are imported by M.G. Sharp Ltd, 712 Attercliffe Road, Sheffield, S9 3RP. Send them a SAE for details of the full range. We carried a review in our September 1980 issue of recent releases. The range is quite extensive, covering old and new designs in many colour schemes. Recently due for release was sectional street trackage, although we had not seen any on sale at the time of writing.

If you want to savour the sight and sounds of trams in action, then Crich Tramway Museum in Derbyshire is a 'must' for your holiday programme. In USA two particularly good places to see and ride trams (or trolleys) are Illinois Railway Museum, at Union (which runs on a remaining section of an interurban route to Chicago) and the Seaside Electric Railway Museum at Kennebunkport, Maine.

Below: *Another service car. This is a sprinkler of Aberdeen Corporation Tramways in 1908, a single-truck car with water tank, easy to covert from a passenger car in model form (H. R. Mackenzie).* **Upper right**: *The Wantage Tramway was an all-steam country line. Here car No. 5 awaits its loco at Wantage Town's small terminus on August 28, 1924 (F. Merton Atkins).*

London Transport 2132 showing the high and low level bridges in Brixton. The tram's third rail can be clearly seen as the conduit between the rails. Bec-Kit 14 lends itself to a 2-rail model of this Feltham car. Note the alternative form of power pick-up, the trolley pole, hauled down on the roof. Year is 1950 (Colin Withey).

Rail Relations: Trams & Trains

A look at freight operations, by Colin Withey

In today's Britain, 'interchange' (in one of its meanings) is the up-market phrase for where bus meets (or misses) train. At most places there is a building between the two modes of transport. Although the street tram was conceived in 1832 in the image of the bus to gain a smoother ride through city streets, the tramcar's electric era in Great Britain had a very much closer relationship with the train than the bus could ever have.

Like the bus, the electric passenger tramcar ran or terminated (sometimes on a most elaborate track layout) outside the station. In Belfast though, the trams actually reversed within the train shed of both the York Road and Queens Quay stations. At Manor House and Turnpike Lane Underground stations in London, there were separate surface tram platforms with their own stairway connections. Most encounters between tram and train, of course, occurred at over- and under-bridges but on many systems level crossings with main-line or mineral railways were necessary. Examples of all-standard gauge crossings were found on the Gosport & Fareham, at Jarrow, Leeds and Newport (Gwent), and on the London Transport system at Beckton, Erith and Nine Elms. The railway companies themselves ran passenger trams between Burton on Trent and Ashby de la Zouch (MR and LMSR), at Cruden Bay (GN of Sc and LNER) and from Grimsby to Immingham Dock (GCR, LNER and BRER). The last mentioned line survived until 1961 with its mixture of street track and bull-head rail open sleeper track alongside the freight rail lines.

For the railway modeller there is a particularly attractive operation which can be added — freight. During the first two decades of this century, the tramcars themselves were an important line of business to the railway companies. Of the 14,000 licensed on Britain's roads in 1927, most probably had been delivered by rail from the works of Brush (Loughborough), Hurst Nelson (Motherwell), BEC (Manchester) and Dick Kerr/United Electric Car/English Electric (Preston). Both the LMSR and LNER inherited from their pre-grouping companies Tramcar Carrying Wagons. These were either well or flat wagons, four or six wheel or bogie, with trestles to support the lower and upper decks (for top covered double deck trams each deck had to travel on a separate wagon). Ordinary one plank or flat wagons carried the single four wheel trucks (or bogies) for each car. So a train of three wagons can be made up for the delivery of one tram. It is much rarer for new buses to be delivered by train.

Most tramway operators had to collect their consignments by road from the nearest goods yard but the larger systems like Blackpool, Manchester and the London County Council had their own sidings within or alongside their main car works. The SECR and SR delivered many hundreds of trams into the building at Charlton (south east London) that today proudly announces its present occupier to be Airfix. Other materials necessary to run a tramway were also received through such sidings — rails, trackwork, traction poles, cable drums, road materials, ballast, timber, sheet and girder steel, sand, cement, masonry, bricks, lubricating oil, and probably many other items. The Birmingham system being narrow gauge (3 ft 6 ins) meant that works cars were loaded in specially constructed exchange sidings in Camp Hill Goods Yard (MR, LMSR and BR LMR).

Tramway power generating stations also received coal by rail such as those at Bournemouth, Dundee (Barnhill), Leamington, Lowestoft and St Helens. At some places like Croydon, the wagons were shunted by four-wheel steeple cab locomotives with trolley poles and overhead wires like the trams. At Blackpool and Huddersfield, the carriage of coal was extended along the tramways. From 1925 to 1949 a steeple cab loco (now preserved at

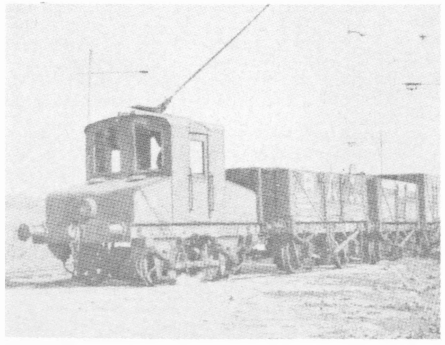
Belfast 330 inside the Country Down Railway's station. Intending passengers have their own platform seat.

the Crich Tramway Museum near Matlock) hauled coal wagons from the exchange sidings behind Fleetwood's Copse Road depot to coal merchants' sidings at Thornton Gate. In contrast, Huddersfield built two motorised coal wagons complete with driving platforms and trolley pole to make deliveries to the mills on the Outlane road from specially built shutes at Hillhouses Goods Yard (LNWR and LMSR).

How about using the tram tracks to get a train from one side of the road to the other. That is just what the LSWR and SR did to get their goods trains from Brockhurst station to a Naval Victualling Base on Portsmouth Harbour. For a short distance the Gosport & Fareham tramway was used. Better still was the very regular passage of freight trains along the Glasgow tramways between railhead and the shipyards and factories on both banks of the Clyde. Industrial steam, battery electric and overhead electric locomotives were employed. The shipyard operations continued into the first decade of the British Railways era, sharing the tracks with the trams until trolleybuses and buses took over the passengers. Parcels traffic interchange did exist between passenger trams and trains at stations. The group of goods sidings that served Manchester's Hyde Road car works and Bennett Street permanent way yard also acted as the interchange for the Corporation's Bennett Street Parcels Office. Within the warehouse there, the parcel van cars were discharged and loaded and driven out into that city's extensive system. In Birmingham, the Tramways Parcels Express organisation transferred their traffic by road vehicle between the mainline termini and the Lionel Street Parcels Depot from whence the narrow gauge parcels trains covered the Black Country. About 1910, the Post Office conveyed their mails between Halifax's main railway station and the Head Post Office by postal trolley. This four wheeled basket was manhandled on and off the tram tracks and chained to the back fender of a passing tram, the postman riding on the open back platform to keep an eye on it. Manchester was probably the last British city where you could post a letter on a tram.

The 1914-1918 war saw the construction of two Government tramways to assist the war effort with munitions and aircraft. These were extensions of existing routes at Gloucester and Norwich to reach aerodromes. Both being of narrow gauge, exchange sidings had to be constructed in the GWR Goods Yard and on the then platform 6 of Thorpe GER Station, respectively. Purpose-built goods motor and trailer cars were used, while at Mousehole Heath (Norwich) a steam locomotive shunted the cars on the aerodrome and to nearby private factories.

Blackpool's loco removes empty coal wagons from the sidings at Thornton Gate.



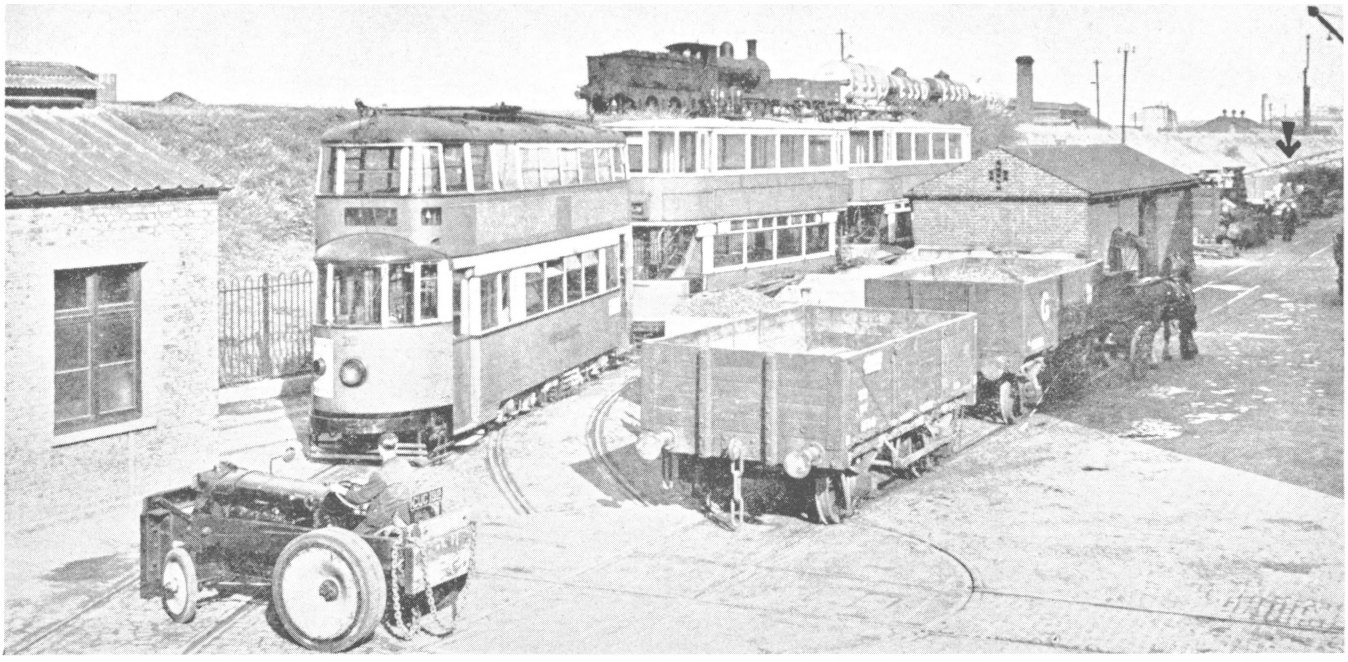
London Transport 30 outside Thornton Heath Station, 1950 showing the lack of road traffic in those days. Bec-Kit 12 models this car. (D. A. Thompson).

London Transport 2302 at Turnpike Lane, Wood Green. The stair connection to the Underground station can be seen on the other platform. Ks made a kit of this E type car (W. J. Haynes).

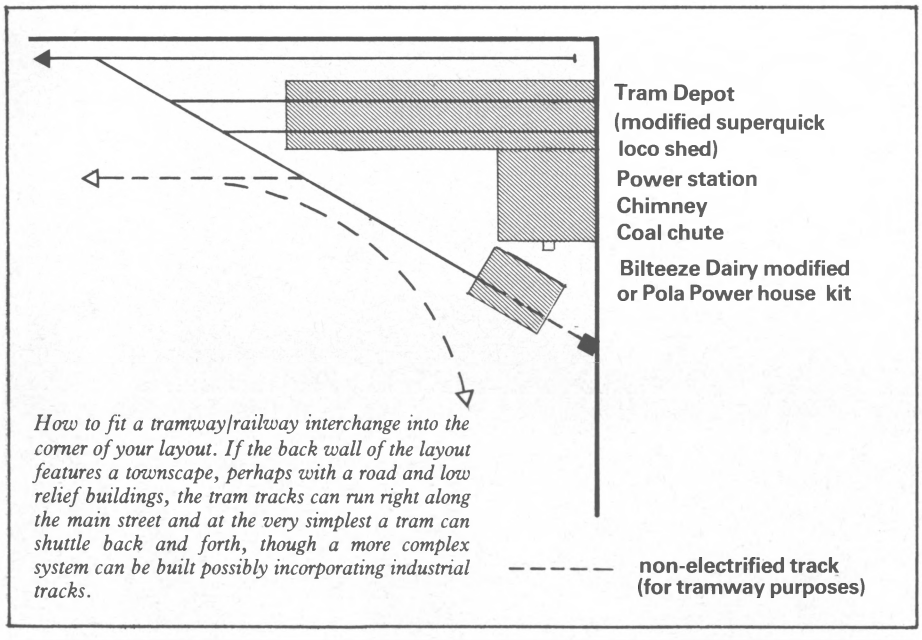
So far the freight operations were all secondary to the tramway purpose of carrying passengers. At Hellingly in East Sussex, an electrified siding ran from the station (LBSCR, SR and BRSR) to the hospital for the delivery of coal. Again a steeple cab loco was employed but instead of hauling a railway coach for passengers between coal workings, an electric tramcar was provided. Here the coal trains long outlived the tramcar in service. The tram's body was afterwards used as a pavilion in the hospital grounds. In 1960, a Swansea & Mumbles car was delivered by BR to the Middleton Railway, an industrial line near Leeds, where it has become a hauled passenger coach. This was possibly the last time in Britain that BR transported a tram.

There were also tram systems which had freight services physically unconnected with railways. However, these belong to another chapter in which the tramway is its own system like a railway and can be modelled quite independently. I have mentioned many place names and for those interested in the extent of these and other tram systems in Britain, I strongly recommend *Great British Tramways Networks* by W.H. Bett and J.C. Gillham, for its text sets out the periods of operation and the maps cover most of the proposed

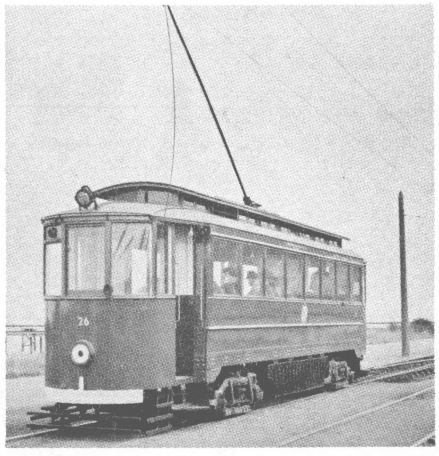
Glasgow hex-dash standard passes Fairfield's electric loco shunting wagons in a Govan shopping street. The loco's bow collector is an extended version of the tram's. (I. M. Connie)



The connection from Angerstein Wharf branch is arrowed at its descent into London Transport Charlton Works. The building on the left was the shed for the original steam loco. Bec-Kit 14 builds the Feltham car and Bec-Kit 12 the two E/1 class cars behind. The original steam loco was used like the tractor shown here to move wagons and trams around the Charlton Works. Today Charlton is a major Airfix warehouse and distribution centre for kits and their model trains. This was the scene in 1938.



How to fit a tramway/railway interchange into the corner of your layout. If the back wall of the layout features a townscape, perhaps with a road and low relief buildings, the tram tracks can run right along the main street and at the very simplest a tram can shuttle back and forth, though a more complex system can be built possibly incorporating industrial tracks.



Grimsby & Immingham 26 (ex-Gateshead) stands at Immingham Dock, sporting the BR electric green livery and second generation crest. Note the sleeper track levelled almost to rail top for passenger access.

lines as well as all those constructed, be they horse, steam, cable, petrol, gas or electric.

If you model a tramway with railway connections, the rolling stock, scenic and other materials are the same as for railway modelling with just a few differences. Do not be put off by street track. You may be able to purchase such sections from the limited Rivarossi range or the Gogtram range in 00/H0, and Arnold in N do conversion sets. Basically just lay proprietary flexible track and small radius points whatever the scale you are modelling; otherwise you will have to scratch-build. Virtually all 00 scale trams and short wheelbase four-wheel railway rolling stock (eg, coal wagons) will negotiate 7 inch and 9 inch radius curves. Many systems had 'reserved' sleeper track either alongside roads or as a light railway. If you are not happy filling in around the rails with modelling plaster to make a roadway and then scoring the flangeways and cobblestones, then I suggest you use the

plastic road and pavement parts manufactured by Loughborough Model Shop 64 Ashby Road, Loughborough, Leicestershire, LE11 3BR, which were illustrated and reviewed on pages 309/310 in *Model Trains* for June, 1980.

For N gauge Arnold offer good masts and an elasticated dummy wiring which looks realistic even though the Arnold N gauge tram cars run conventionally like a 2-rail locomotive — the overhead system is purely 'cosmetic' though most effective. The special Arnold elasticated wire could obviously be used as well for 00/H0 trams which pick up from the track only. The Mehanotehnika trams offer an example, but you need to check your equipment. For example the Rivarossi HO trams have to pick up from the overhead wire in prototypical fashion.

The Loughborough Model Shop can arrange for ready-to-run trams to be made to order. Anbrico Scale Models, 4 Perservance Street, Pudsey, West Yorkshire, LS28 7PZ, and Transport Replicas, 3 Goudhurst Road, Downham, Bromley, Kent, offer made-up static models. There are kits for most basic types of British trams and the good availability of spare parts makes variation very interesting. By far the largest range (motorised or static) is produced by Bec-Kits PO Box 5, Aldershot, Hampshire, GU12 6JP. Their catalogue, price 45p including post, illustrates 18 British cars that can be made without veering from the detailed instructions; a separate list prices spare parts and ready-to-run traction units. From their Preston range, prototypes from over 100 systems could be modelled.

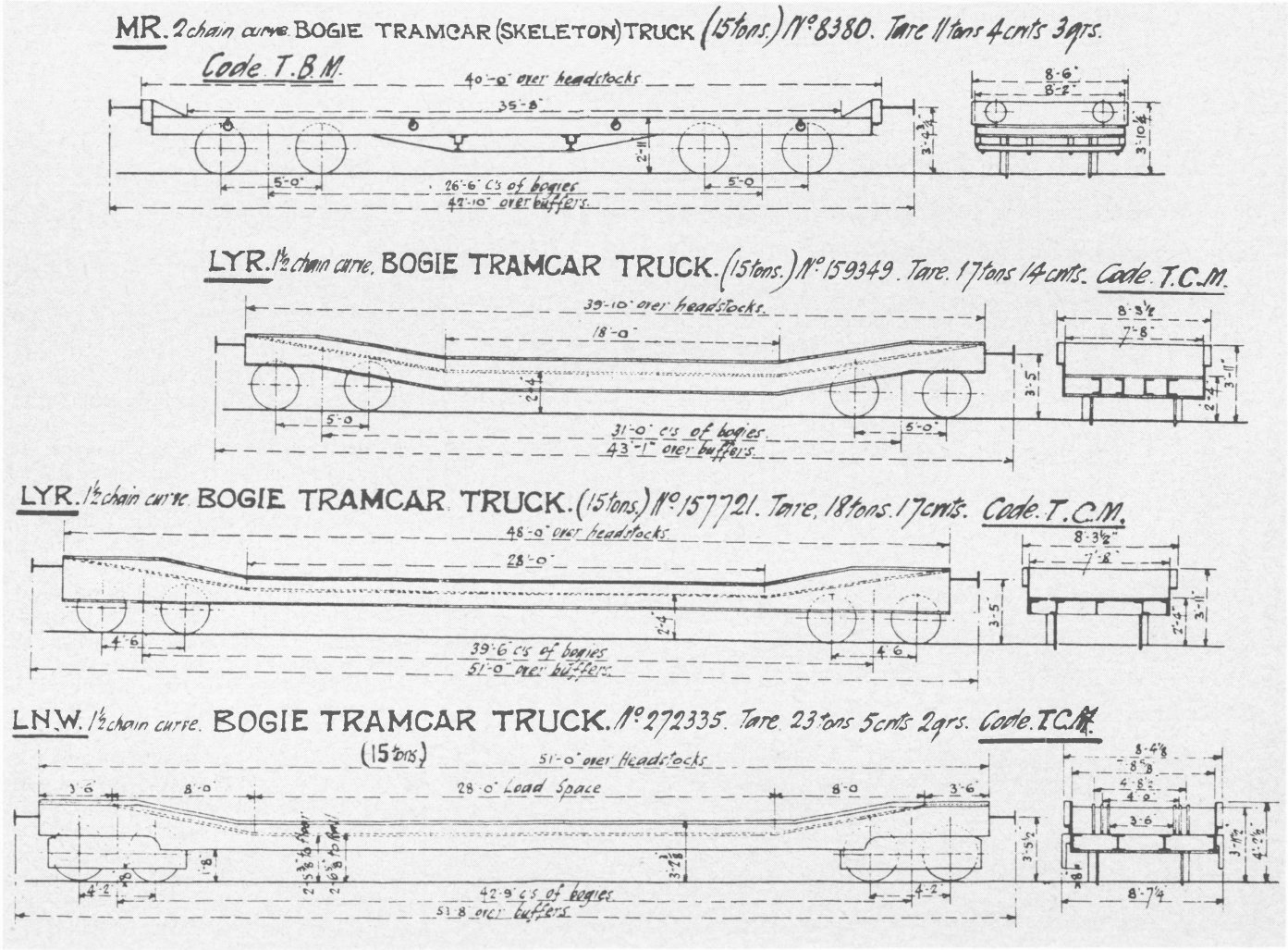
Also for modellers in N gauge a British style tram kit is manufactured by D & M and distributed by Jarvis Manufacturing, 42-44 Lower Hillgate, Stockport, Cheshire. 0 gauge interest is catered for by M. T. Russell, Chaceside, St Leonards Park, Horsham, Sussex RH13 6EG.

Do not be put off either by the overhead wires. London, Blackpool, Bournemouth, and Gravesend & Northfleet used a conduit system laid between the running rails on part of their networks. Hastings, Lincoln, Mexborough & Swinton, and Torquay used instead studs placed centrally in the tracks. Unlike the permanently 'live' studs used for electrification of stud contact model railways, (eg Märklin), these studs were activated to the 'live' position by the skate collector carried beneath the car. From the rear fender hung a wire-brush to short circuit any stud that failed to switch-off. The conduit and stud operations lend themselves to two-rail electrification as with model railways. Only the conduit/stud cars of Blackpool and Gravesend & Northfleet are not catered for in kit form. A working overhead could be installed retaining two-rail for traction and be kept dead. This would seem a waste and I suggest you use it for a lighting or second traction circuit. Ideally, one should use the single overhead wire as the return for two separate rail circuits to maximise the number of cars on one track with conventional control equipment; at least if the trolley pole dewires it will not be ripped from the roof or

Glasgow 942 has no option but to await the passage of the battery electric loco hauled train. Bec-Kit 15 models the tram. (A. K. Terry)

tear down the overhead! Any of the overhead catenary systems on the market can be used for trams in 00/H0 though the masts are often on the heavy side for trams, being mainly intended for main line railways. Motorised kits are available from R. Meadowcroft Models, 277 Keighley Road, Colne, Lancashire, BB8 7HD, and Model Tramcar Design, 7 Earby Grove, Blackley, Manchester M9 1LL, while kits for static models (which could be motorised using Bec-Kits units) come from Anbrico, Transport Replicas, Mr T.J. Martin, 28 Marlfield Road, West Derby, Liverpool 12, and BPTA, c/o 148 Corhampton Road, Boscombe, Bournemouth, Hampshire. A range of transfers specially for trams has been developed by Mabex Products, 31 Pevensey Road, Eastbourne, Sussex, BN21 3HR.

For freight haulage, one could get away with using steam in the shape of Hornby's


MR. 2 chain curve. BOGIE TRAMCAR (SKELETON) TRUCK (15 tons.) N°8380. Tare 11 tons 4 cwts 3 qrs.
Code T.B.M.
40'-0" over headstocks
35'-8"
5'-0"
26'-6" c's of bogies
47'-10" over buffers.
5'-0"
LYR. 1½ chain curve. BOGIE TRAMCAR TRUCK. (15 tons.) N° 159349. Tare 17 tons 14 cwts. Code T.C.M.
39'-10" over headstocks.
18'-0"
5'-0"
31'-0" c's of bogies.
43'-1" over buffers.
6'-0"
LYR. 1½ chain curve. BOGIE TRAMCAR TRUCK. (15 tons.) N° 157721. Tare 18 tons 17 cwts. Code T.C.M.
48'-0" over headstocks
28'-0"
4'-6"
39'-6" c's of bogies
51'-0" over buffers.
4'-6"
L.N.W. 1½ chain curve. BOGIE TRAMCAR TRUCK. N° 272335. Tare 23 tons 5 cwts 2 qrs. Code T.C.M.
(15 tons)
51'-0" over Headstocks
28'-0" Load Space
42'-9" c's of bogies
51'-8" over buffers

new saddle tank (or as modified on pages 538-539 of *Model Trains* for October, 1980) and K's Tram Engine. The H0 scale continental steeple cab models from Roco, Lima, Fleischmann and Piko are suitable after repaint or adaptation as ready-to-run equipment for such a 4mm scale line (see pages 367-368 of *Model Trains* for July, 1980). While there may be a temptation to use the Rivarossi and Sommerfeldt tramway overhead systems or other continental manufacturers' catenary for these locos, beware if you intend to run double-deck trams. Over model British roads overhead wires should be no lower than 66-68mm! I thus recommend adoption of British style traction poles and overhead wire system plus the fitting of working trolleys and bow collectors from R. Meadowcroft Models. If you hesitate about the extra investment in overhead wiring, I can assure you that this system will last a lifetime and still stand the rigours of later relocations. Because of the tension needed to have an attractive and effective current collection system, the Meadowcroft poles should be bolted (yes they are prepared together with nut) through a sturdy baseboard material like chipboard. With the generally slower speeds of a tramway, 'drumming' will not be such a nuisance as with a railway. Tram stops can be handmade and glued to the poles and at important places a W & T Bundy Clock (obtainable from Loughborough Model Shop) can be located on the pavement for the 4mm scale Bec-Kits conductor to record the car's progress.

For N gauge there are at least two suitable locos for freight work on tramways — the 'box cab' old-time electric loco by Fleischmann and the 169 Class by Arnold, both excellent runners. Arnold's tram car and trailer are good models of 1913 MAN-built Germany prototypes, but they look quite passable in a British setting if preferred.

There are two further ready-to-run trams worth knowing about. One is a Mantua single-truck trolley of Edison or Brill type and the other is a two-truck Brill by Bachmann recently introduced and available from Victors at £6.95. Both are H0, but usable as 00, and both are of course, single-deckers.

If you model an actual prototype have a look into history to see if trams ran on the other side of the fence. However, if you freelance, albeit with any one of the British mainline railway companies after 1890 there must have been a tramway system either actual or planned somewhere near to your location for incorporation. Most such model layouts tend to be rural in aspect, so why not add a small depot and power station served from your mainline in that odd corner and start your own tram service? The tramway could be developed as a branch off your branch using the power station siding as the exchange siding. By ending the main tramline behind the depot you would produce the same effect as a fiddle yard camouflaged by an over-bridge or tunnel. Have a look at the book I recommended above and determine the sort of tramway system you could go on to freelance.

Would you believe trams on the A3? Just look at this scene from the 1930s. Car No 1 is easily modelled from Bec-Kits No 3; only the headlamps will need to be repositioned. This car is on the Portsdown and Horndean line alongside the trunk A3 London-Portsmouth road! The motor-cyclist with beret and plus fours is a detail which will add to the 1930s atmosphere in model form.

THE COUNTRY TRAM

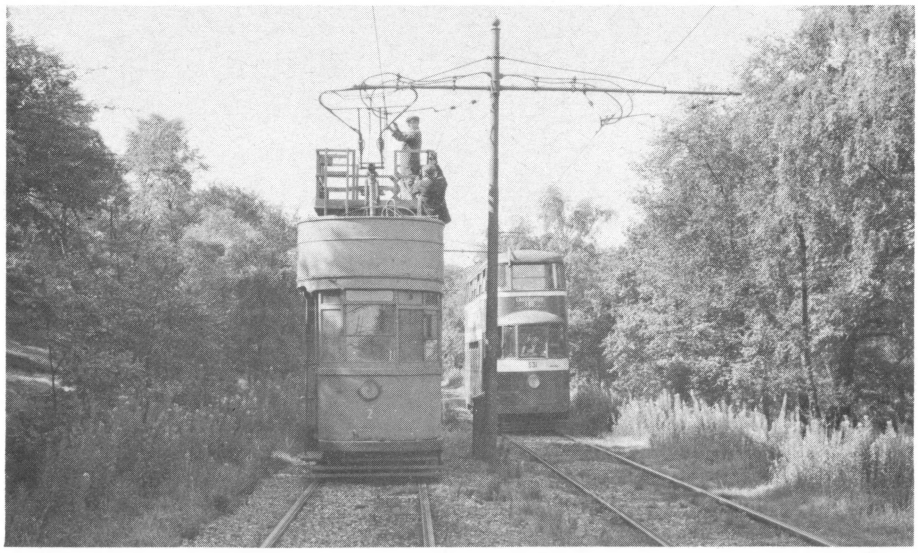
Colin Withey suggests a freelance sleepered track tramway with origins in prototype practice.

The British tram was very much an urban street machine particularly in its heyday of the 1920s and 1930s. Before then many of the termini were in open country and even London trams ran along unmade roads ahead of the tide of the urban sprawl that was soon to spread beyond the termini.

However, there were the exceptions to the rule but very few when compared with the rest of Europe or North America. There were lines that appeal to the modeller who likes the rural scene and/or using sleepered tracks. Some of these were complete systems in themselves (Grimsby and Immingham), others were to become part of an urban network (Blackpool and Fleetwood/Kinver Light Railway) or had through running (Burton and Ashby/Portsdown and Horndean). As the metropolis expanded, many of the extended tram routes were segregated from other road users and placed in colourful boulevards (Thorpe Bay, Southend) or crossed the green belt between conurbations in a rural environment (Middleton Light Railway, Leeds).

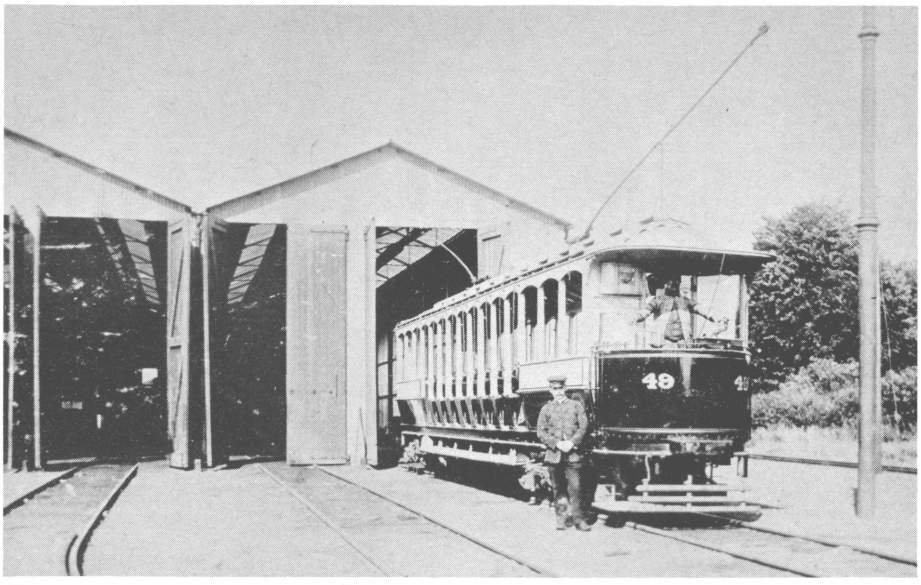
Modelling the tram in the country is little different to modelling a Great Western

A rural scene near to the centre of Leeds! An ex-London Feltham car passes Overhead Line car 2 in Middleton Woods in the mid-1950s. The Bec-Kits No 14 makes the Feltham (ask for bow collector when ordering) and by modifying kit No 3 you could also model Overhead Line car 1. (A.D. Packer).



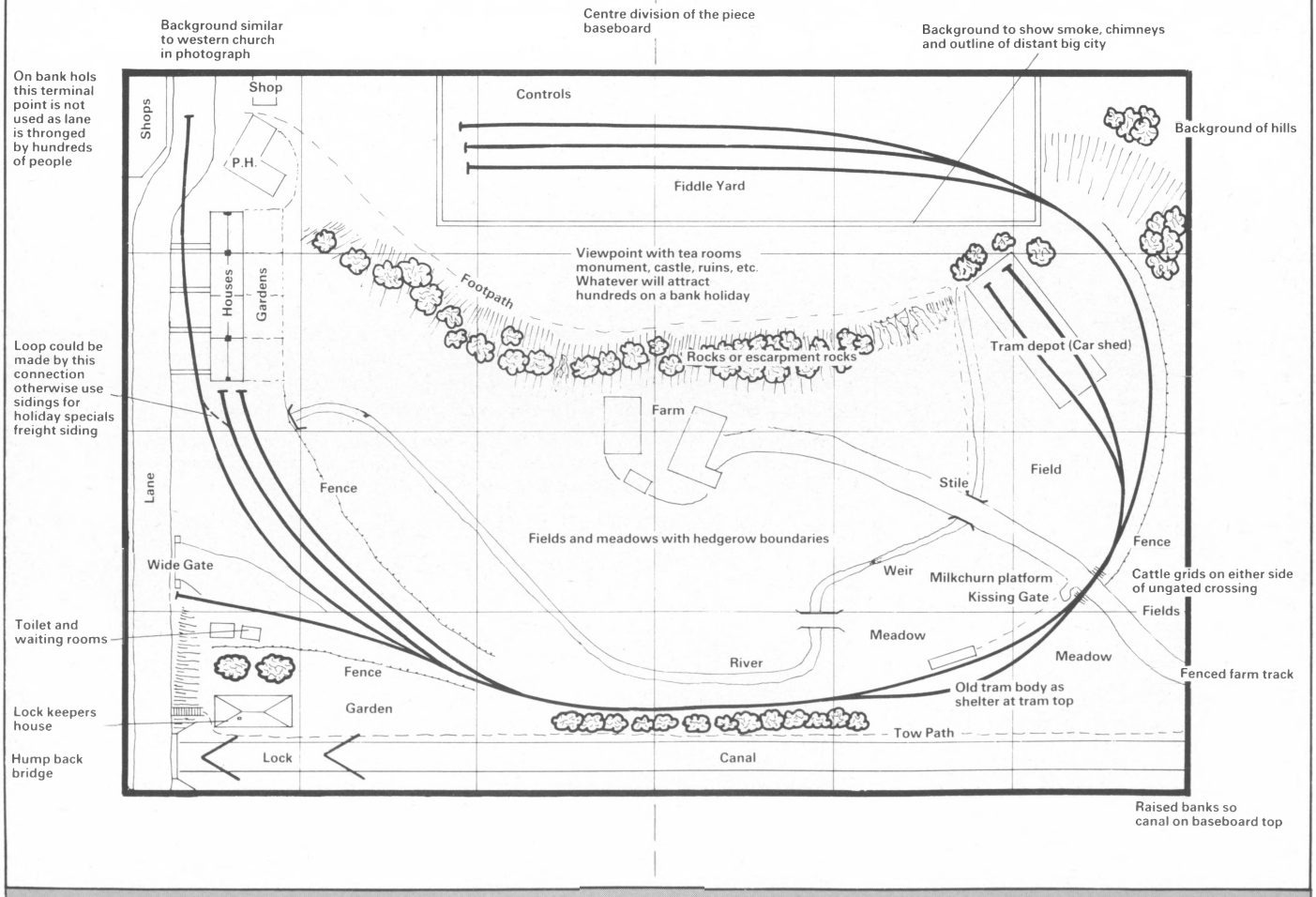
branch. Articles in *Model Trains* and its contemporaries on baseboard construction, ballasting tracks, electrical connections, scenery and buildings are all valid. Techniques of kit building and bashing are principally the same. Really it is the track layout and installation of the overhead wiring that are new territory. Street track basically need be no more than an unending level crossing made from plastic sheets such as the cobbled variety from Loughborough Model Shop (pages 309/310 in *Model Trains* for June, 1980). Faller produce printed embossed cobble stone sheets which can be used and Slaters do embossed plastic card.

To me the most attractive rural setting for a tramway was that through which the Kinver Light Railway ran. Single track with passing loops; a bit of street running; a road in a cutting; roadside track past farms, detached and semi-detached houses; a passing loop outside a pub; then completely away from the roads, through meadows, a castle in the distance; milk churn platforms on either side of the line; on girder bridges



The corrugated iron Kinver Depot was situated in a wood and was only reached by tram or on foot. Each year it opened for Good Friday and was closed the following October storing the summer cars like No 49 throughout the winter months (F. Merton Atkins).

'On the edge of the Black Country'



***Here is a** suggested track plan for a country tramway incorporating prototype features and including provision for freight running. The car depot and the two tram stops on the left side are based directly on Kinver and Weston as illustrated with this article. Minimum area is 6ft x 4ft for 00/HO (half that for N scale) but the same plan more spread out can be fitted in 7ft x 5ft or 8ft x 4ft in 00/HO, solid top in each case. The plan can be used for British, German or American settings as desired, and cars can be single or double-deckers. Suggested scenic development is also shown, but could be varied greatly.*

the line criss-crosses a river and a canal; running through woods, alongside the canal towpath; passes a depot in the woods, the historic sites of early ironworks; and then along the edge of a village by a canal lock, a multi-track terminal with its own buildings. From the light passenger traffic of a winter's morn to the hordes of revellers on a Bank Holiday with cars still running into the early hours of the following day to get the last person home.

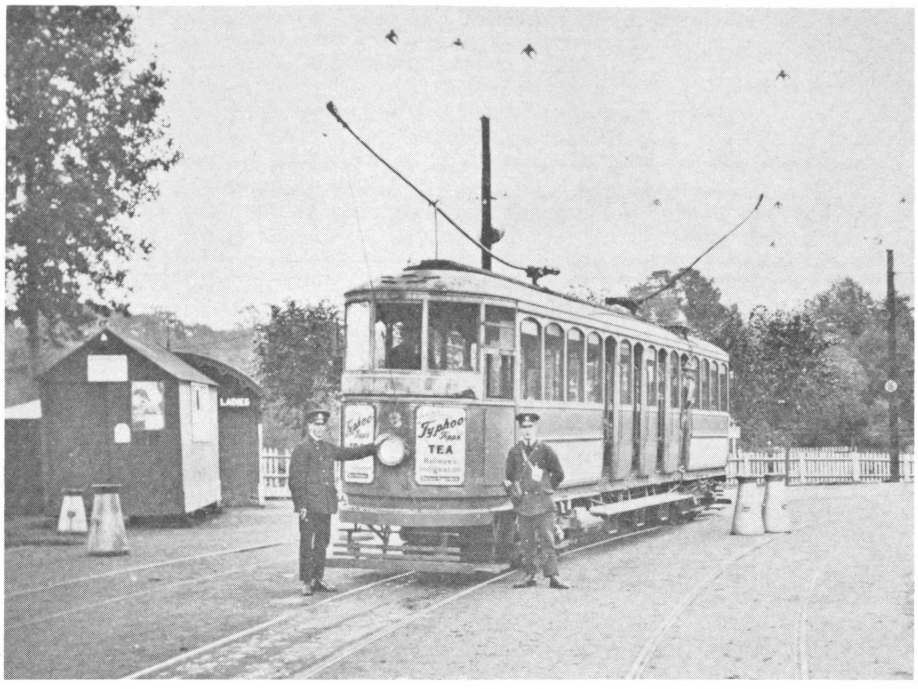
If you like single-deck cars then this is your line, and for a freelance country tram system based on Kinver you could use any of the older type of German or American ready-to-run cars available today. But neither are double-deckers really out of place on such a line, be they open-toppers, the Feltham cars or Blackpool's new one man car. There would also be freight cars for milk churns, parcels, etc, and works cars, all adding variety for the modeller.

The plan shows a relatively inexpensive table top layout. Overhead wires and their supporting poles need not be added until you are satisfied that the cars run all right on two-rail. Modeller's licence can be called if the overheads are going to cause you bankruptcy! Consider that you have stud or conduit supply until you get round to installing wires. Proprietary track, like Peco Setrack or Roco R5 (10 inch radius), is fine and sharp curvature befits a tramway. What car is to be the first? Well I strongly recommend beginners to start with Bec-Kits kit No 5. Apart from being a model of the earliest type of electric double-decker in Britain, its construction covers the skills necessary to complete any kit in the range. No matter how badly you may think your car body has been built, provided you have not tampered with the traction unit it will run.

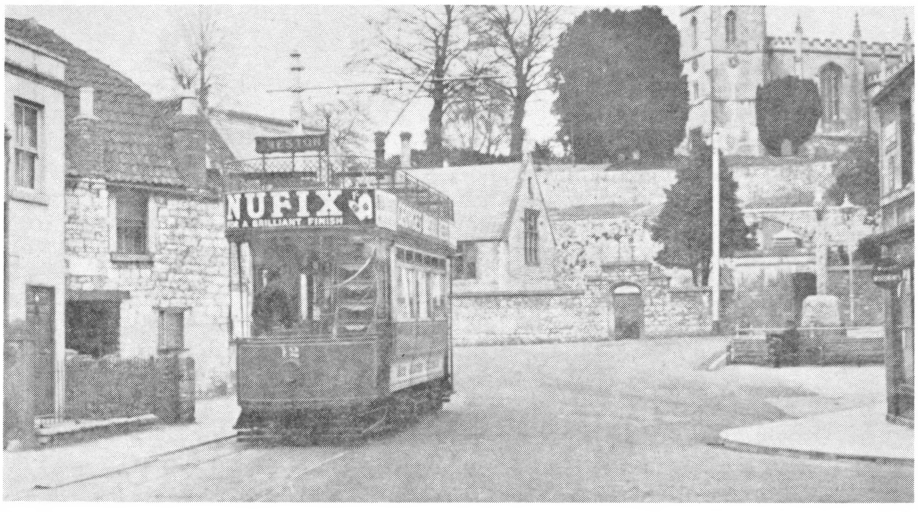
If the Kinver line appeals, then Oakwood Press published *The Kinver Light Railway*, Ian Allan produced *Tramway Memories* and *Tramway Heyday* and J. S. Webb wrote the fullest account in his *Black Country Tramways* — you need to read both volumes I and II.

If you are not sure of where in Britain to locate your freelance system then how about a hilly background and omitting the canal? Your operator could be called The High Peak District Light Railways Co Ltd, whose line was planned to connect Buxton with Macclesfield with a depot at the Cat and Fiddle!

Serving Grasmere — Ambleside — Windermere — Bowness Pier might draw you to the Windermere District Electric Supply Co Ltd. which also had grandiose ideas. Liveries? Well like the timetable, it is up to you.



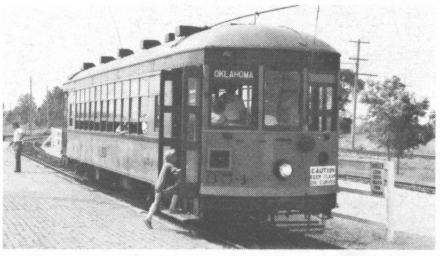
Gone are the holiday crowds at Kinver village and the early morning van car collecting the churns for the creameries in Dudley. Just a few passengers and churns in sight. The buildings to the left comprised ticket office, toilets and a waiting room. The delightful scene, with single deck car, just cries out to be modelled! (Lilywhite commercial post card).



The village of Weston in Somerset makes a fine setting for a simple terminus. Bath's No 12 was in a blue and white livery. A nice car to model from Bec-Kits No 3. (W.A. Camwell).

Country trams, German style. DEGEb tram 484 runs as a special at Neu-Isenburg, March 1977. Note the charming rural station (R. Bowen).

Country tram, US style. Chicago & Milwaukee Electric Railway Co. express car 354 picks up passengers at Union, August 1979.



Trams to the Tiergarten

Chris Ellis looks at a Nurnberg route with many points for modellers

Hub of the Nürnberg tram network is the terminus outside the main railway station — actually not a terminus but a junction since most routes pass through the city centre. This is the view from the outside of the station with a car and trailer on route 8 waiting to start. Subway at right goes under the road to the railway station entrance hall.

Last summer I went to Nürnberg to visit the Fleischmann factory (but that's another story) and while there I did not miss the opportunity to travel as extensively as time would allow over that fair city's tramway system. Indeed, one of the great joys of trips to Germany, Austria, Switzerland, Belgium, Holland, and other European countries, is the chance to ride on trams, for many big cities still have extensive tramway systems which provide efficient public tramsport at modest fares, all existing quite happily with cars, trucks, and buses on city streets, just as they did in Great Britain a generation or more ago. In England you can only savour the experience of modern trams (in a limited way) at Blackpool, or you can ride the genuine old-time trams at Crich. If you want to do more than this you'll have to head for the Continent where tram systems in such cities as Munich, Frankfurt, Dusseldorf, and Nürnberg will give an idea of how trams ran in British cities until the 1930s and 1940s.

When we thought of making a small tram layout as a simple project for *Model Trains* it seemed a good idea to seek inspiration from the real thing, rather than just invent something entirely notional. It so happened that route number 3, from Nürnberg's main station (Hauptbahnhof) to the city zoo (Tiergarten) was the way to the hotel where our Fleischmann hosts had installed us, so I made a few extra trips on the number 3 cars to see what there was to this particular route. Well, the answer is plenty, since this is a very typical city-to-suberb route which could be duplicated almost anywhere in any setting. Indeed, I remember riding a city-to-suburb route in Glasgow in the 1950s which had almost the same features, and I've been on other Nürnberg routes in the past (and some in other German cities) which were all generally similar in layout.

The No 3 route is a good one to copy in model form because it gives the classic contrast of bustling city streets at the start of the journey, and leafier less crowded streets further out, terminating literally among the trees in very rural surroundings. Add to that a very frequent service with the usual rush hour crush of city workers on weekdays, and no let-up at week-ends when zoo visitors are carried, and you have an interesting route both scenically and operationally. Halfway along the route is a busy industrial area right alongside the tracks called Lagerplatze (storehouse place) which has a Coca-Cola bottling plant one side, a brewery store opposite, and a works yard owned by the tramway where ballast, stone setts, and other constructional stores are handled, served by sidings off the No 3 route. The Coke plant and brewery store are not served by tracks, but if you want to take a bit of modelling licence it needs hardly any imagination at all to visualise a siding to each so that the crates of drink from these places are shipped out in rail wagons rather than the inevitable big trucks. In Nürnberg these days only works trains to carry track and ballast, etc, are seen apart from the passenger and service cars, but in years gone by freight wagons could be seen worked along the tram tracks to the station yards in quite a few cities, just as they were in Britain.

This is the other leg of the L-shaped tram station, immediately opposite the Grand Hotel shown in the view above. A route 3 car and trailer (painted bright red for advertising purposes) is pulling in and will be crowded with the home-going school children in the foreground.

Therefore, when we came to make up our little tram layout we utilised the Tiergarten terminus, the Coca-Cola plant with a siding added, and the brewery, and the works yard, but set them all in suitable corners rather than in one place. This added much freight working to the pasenger operations, thus making a small layout very busy, which is more than half the battle if you want a layout which won't bore you with inactivity! This is all by way of a curtain raiser to the first instalment of the layout series, but now look at the pictures which show the salient features of a typical tram route which can be copied in any scale and in any setting. The beauty of tramway modelling is that you do not have to be too dogmatic about anything. Be selective about the features you want. If you find trees and hills easier than

Top left: *Here is the Coca-Cola plant at Lagerplatz with the tracks in the foreground turning off the main road into the works yard.*

Top right: *Turn around, and we see into the works yard with its piles of stone setts, paving stones, and track ballast. At the rear the main railway line passes by, just visible under the colour light signal gantry.*

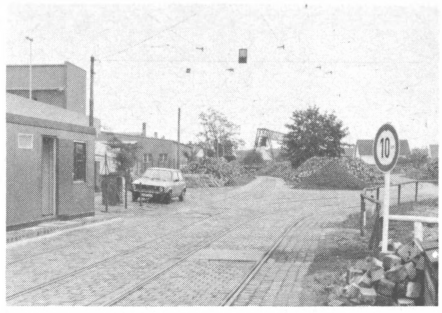
Right: *Here is the brewery warehouse. It has no actual rail connection and all shipments are by road. However, it takes little imagination to visualise a rail siding passing under the canopy into the yard. The open gate to the yard is extreme right.*

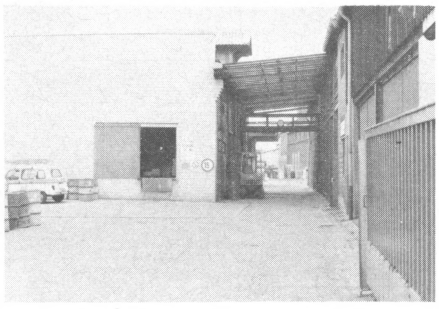
Far right: *Further round in the works yard, a front-loader tractor can be seen loading ballast into a tipper belonging to the city tram company. The next door premises are a fuel supply yard packed with oil storage tanks and just visible here.*

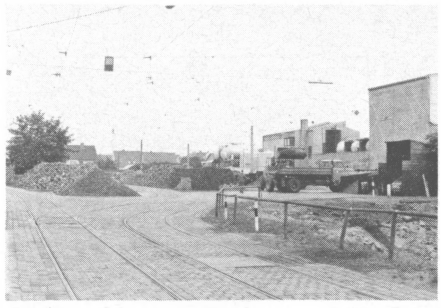
Bottom right: *A typical street tram stop on route 3, this one at Erhardstrasse about halfway to the city centre, with a city-bound car and trailer. There is a reserved track down the centre of this boulevard, flanked by the trees and dividing the road into a dual carriage way. Track is of open sleeper type except at stops where it is paved over. Note glass shelter and tram stop (H) with route information and identification of location.*

Middle right: *Sketch plan shows Tiergarten terminus with turning loop and lay-over or passing siding.*

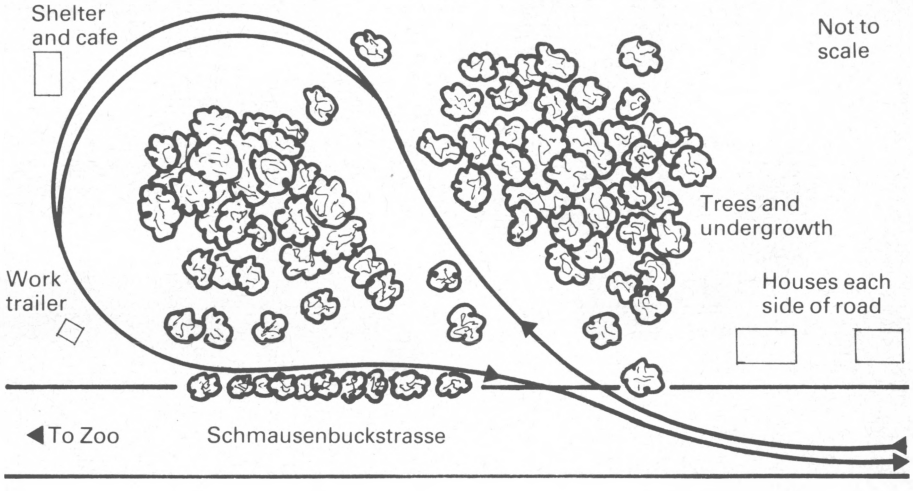
Below: *Schmausenbuckstrasse is a wide street with neat suburban houses and leafy gardens on each side. Here the incoming car and trailer set turns off the road on to the turning loop which is hidden in the trees. This is point X on the plan.*







Brighton Corporation Tramways in the early part of the century. The terminus at Old Steyne, near the sea-front is very similar to the Tiergarten terminus in layout, except that the loop is bigger. At Brighton the centre of the loop was occupied by Old Steyne Gardens, with tall buildings on the three facing sides and the track set in the roadway which also ran around the Gardens. Old Steyne Gardens, the road, and the buildings all still exist and the trams served both the heart of the town (from the northerly outskirts) and the nearby beach. So feel free to pinch route No 3 to the Tiergarten and set it down in any place at any time with the cars and tramway system of your choice!



buildings, just the Tiergarten terminus end will still give an authentic layout, without a building in sight except for the waiting room and café structure. The city centre is quite a handful, even when compressed, and on our layout it is just represented by a fiddle yard, but a later extension could be to the big city itself, making use of the fine tall city buildings which are included in the Faller, Kibri, Pola, Heljan, and other ranges of kits.

The simple looped terminus track is very much a classic used in many tramway operations. To illustrate this point, take a look at old pictures of

Continued on page 142

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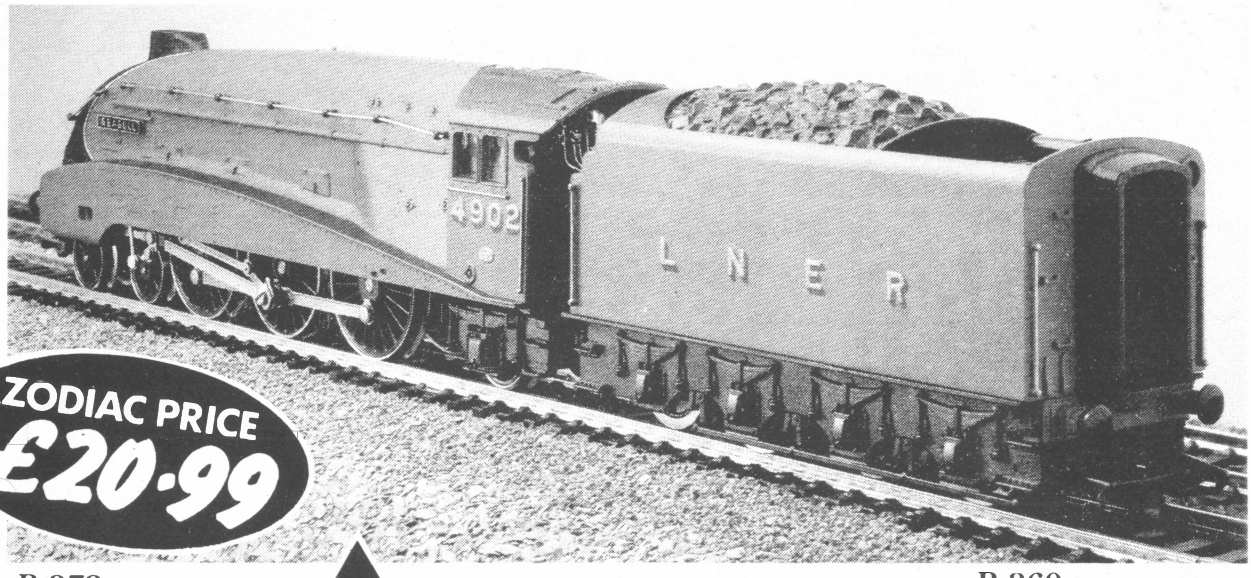

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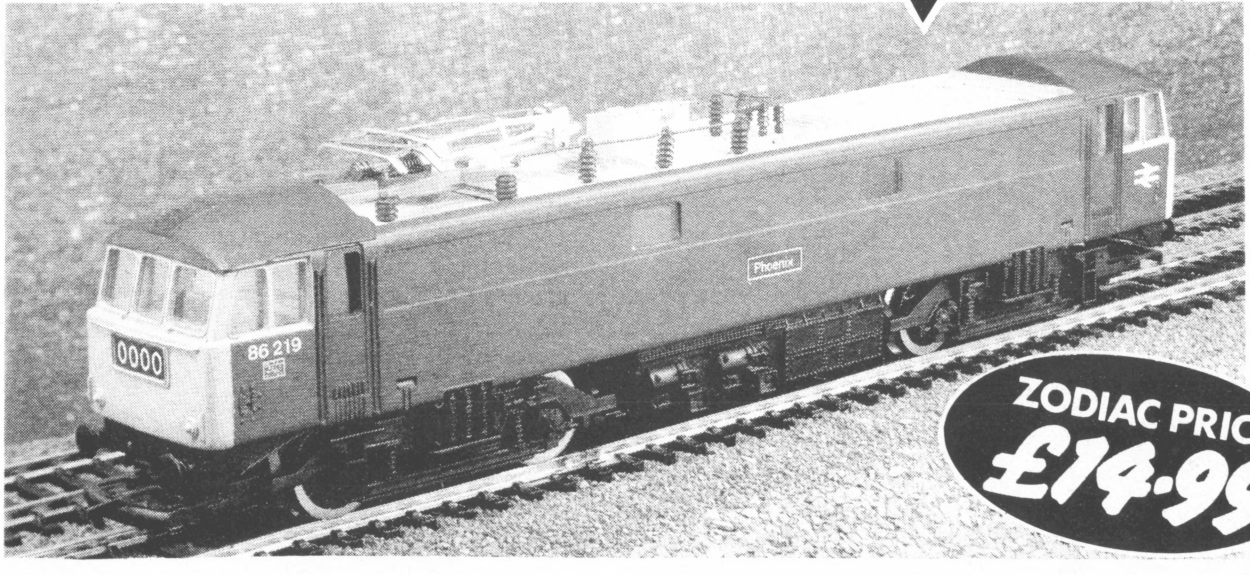

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201/203 HIGH STREET, BROMLEY.
218 HIGH STREET, CHATHAM.

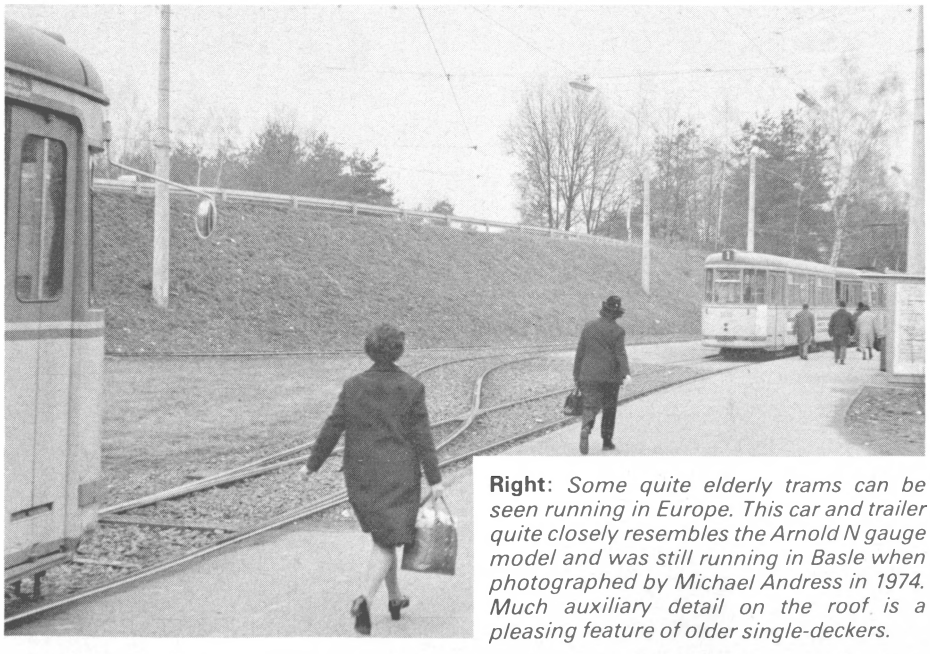
Right: *Articulated car and trailer, having passed right round the loop now waits to pick up passengers at the tram station for Tiergarten. The area by the station shelter is asphalted, but everywhere else is heavily wooded.*

Far right, centre: *Two more views at the Tiergarten terminus show the very simple passenger shelter and the refreshment hut where drinks and ices are served at week-ends and holidays. The other view shows a works trailer caravan for the men who were repairing the asphalt surfaces when the pictures were taken — an interesting addition for a model layout.*

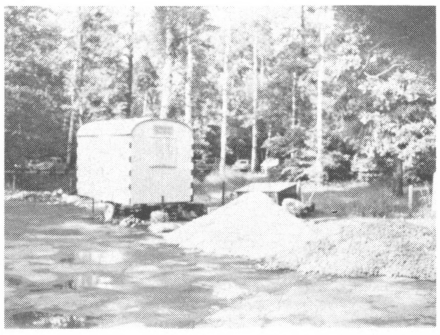
At bottom: *The turning loop is very common in various forms. If you catch Nürnberg's route No 1 to the famous exhibition centre (where the Nürnberg Toy Fair is held) you come across this version where the loop is elongated and the passing siding is alongside the tram stop. Car on extreme left has just set down its passengers while the car and trailer at right picks up. When this sets moves off, the empty car on the left will draw forward to pick up. This is a much less pictureseqe setting than Tiergarten.*

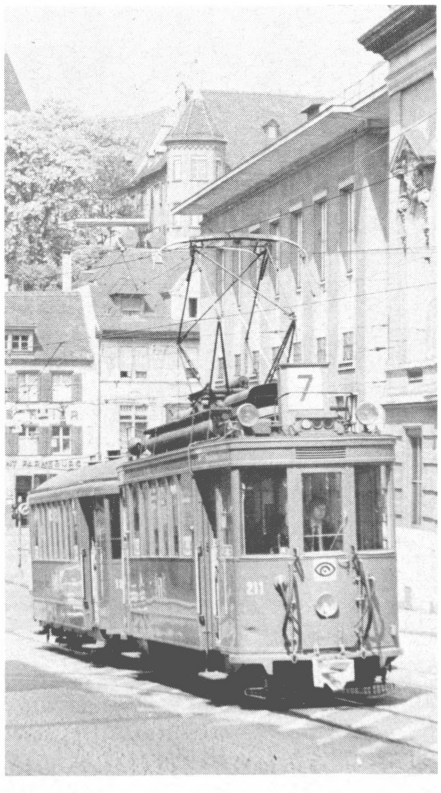
All photos by Chris Ellis, except where noted

Below: *On the return journey to the city centre on route 3, car 241 with trailer emerges from the woods back on the Schmausenbuckstrasse which is otherwise very much a country road leading out of town and passing the zoo gates. Note the warning signs by the track and the faded white lines painted on the trees.*



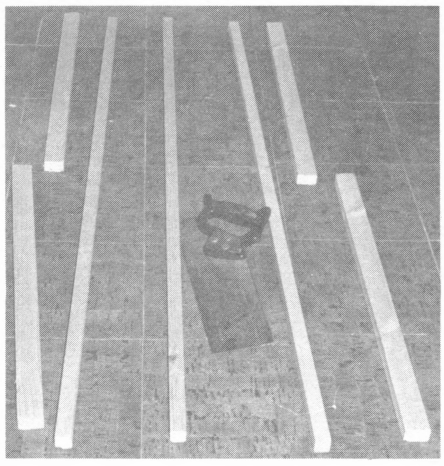
Right: *Some quite elderly trams can be seen running in Europe. This car and trailer quite closely resembles the Arnold N gauge model and was still running in Basle when photographed by Michael Andress in 1974. Much auxiliary detail on the roof is a pleasing feature of older single-deckers.*



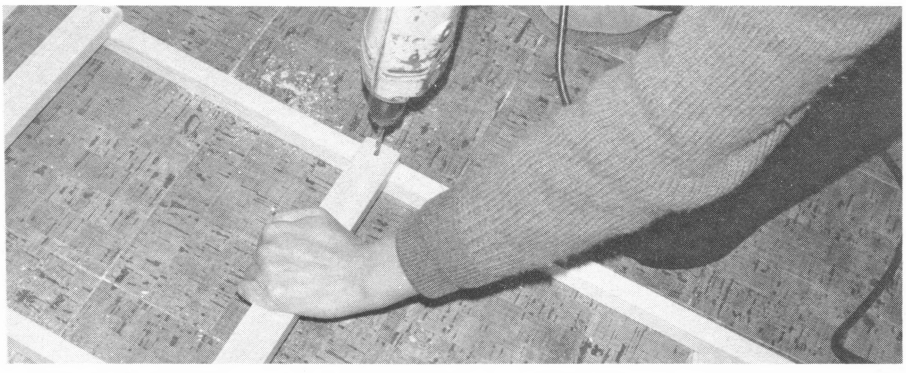


The Tiergarten Tramway

A layout for trams, with many variations and possibilities



Right: *Here are the parts laid out for the baseboard framing after being cut to length. The longitudinals are 1in x 1in and the cross-pieces are 2in x 1in. You need three longitudinal pieces 4ft long and five cross-pieces 2ft long, all cut from battening sold at most DIY shops. The flat top (shown next page) is 4ft x 2ft softboard which we brought cheaply as an off-cut.*



The framing was assembled quickly on the 'criss-cross' principle. Lay out the three longitudinals on a flat surface, join the ends with cross-pieces, then space the other cross-pieces at 1ft intervals. No joining is required, making work quick and simple.

There is no shortage of themes for model railway layouts, but the least commonly seen is a tramway, almost certainly because ready-to-run tram equipment is not widely available and even kits are only stocked by specialist suppliers. A tramway can be incorporated within an existing rail layout if it is properly planned, if only as a bit of nominal movement on a road which forms part of the backscene. There is nothing to stop you modelling a complete tramway, however, so this project shows how we made a very simple one which packs in as much operation as can reasonably be fitted into a small space. Tramways are really light railways which may run in the streets, but not necessarily so. They may be electric, but they could be entirely steam, and they are not confined necessarily to cities. All these things we have established, so we can go on to consider a few more requirements.

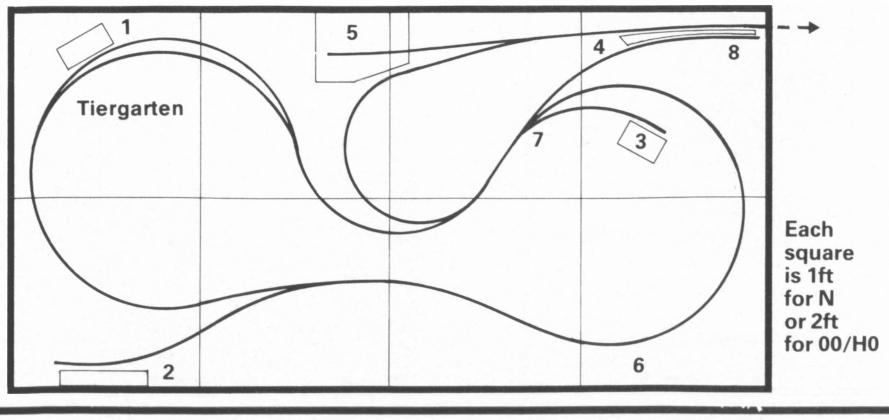
First and foremost, a model tramway, like a narrow gauge layout, can be made as a side diversion from more serious work if desired, and we have planned this layout to be complete in itself, yet capable of expansion or adaptation to fit other layouts (including a conventional railway layout) if desired. Next any layout is at its most successful if it demonstrates a purpose — in other words if it can be shown to be doing revenue-earning work, not just running prettily round in circles with no timetable or visible destinations. Boredom sets in quickly if trains (or trams) just run round and round and have no particular purpose for you or your visitors. With trams you need to be extra vigilant, for in real life trams tend to run around almost literally in circles. The staff are kept busy enough, and the money rolls in from the fares they collect. However, this aspect can't be simulated in model form other than by a pause at each tram stop. To overcome this we've taken all the modelling 'licence' we can to break up the pure passenger services with as much freight running as possible. This aspect will be covered in more detail later on, but for now merely note that the plan shows various works and factories which require freight stock to be run through the streets in the old fashioned manner.

On this layout the Tiergarten terminus and several other features are lifted straight from Nürnberg, but our setting is purely imaginary, though meant to be West Germany in recent years so that currently available equipment can be used. However, you can choose your own setting depending on the scale and the equipment you have. The obvious choice of scale would be 00 or H0 because there are more trams available ready-to-run in this scale than any other. We used N scale, though, for which only Arnold make models, and a few kits are available. We would have preferred 00/H0 this time, but space considerations forced us to use N. Because you can use very tight curves with trams and four-wheel freight wagons you can get away with 6-7 inch radius in 00/H0 which is about as far as flex-track will flex. Roco make the tightest radius sectional track we know (R5, 10 inch). Tight radius curves are prototypical with trams (even so, there's no need to use them if you don't have to) so that an 00/H0 layout can be packed into an area as small as 4ft x 2ft or 4ft x 3ft. Our N gauge version is generously positioned in 4ft x 2ft with only a few tight curves just to get us round corners. Where possible we used ordinary curved track which is pretty tight anyway. In theory exactly the same layout would require 8ft x 4ft for 00/H0 but in practice by using tighter curves you'll probably get it in about 6ft x 4ft. If you seek some easier alternatives, however, we've drawn a couple of alternative track plans which can be used for 00/H0 or for smaller areas in N scale.

Mehanotehnika, Bachmann, Rivarossi, Gogtrams, Roco, or Liliput will provide your stock requirements in 00/H0. A real 'fun' project would be to try the layout with LGB trams and steam tram loco, either indoors or in the garden and again adapting one of our plans.

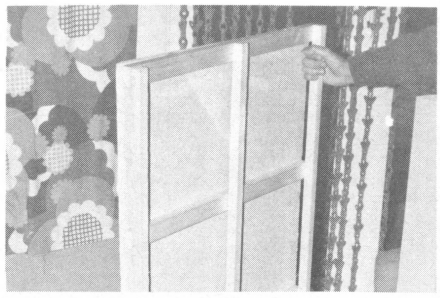
Returning to the actual layout as we are making it, we assembled a very light but strong board using our quick 'criss-cross' framing method. All the track came from the Fleischmann N gauge range (with some Peco), and the 'thinking' turn-outs mean

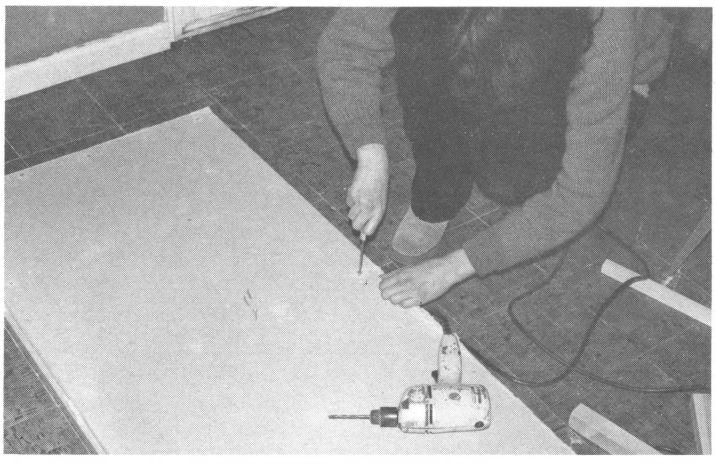
Here is the track plan we worked out for N gauge. Key: (1) Tram terminus at Tiergarten, with runround/layover loop. (2) Coca-Cola plant. (3) Power station. (4) Low relief brewery warehouse. (5) Works yard. (6) Power feed. (7) 3-way turn-out (Fleischmann). (8) Fiddle yard — track leading to city centre terminus. This fits 4ft x 2ft in N. Some alternative track plans are shown next page.



we need only one feed to the layout though it would be necessary to sectionalise the track if a really intensive service was envisaged. For 00/H0 or larger we would suggest adoption of one of the 'independent' (two-wire) control systems from the start.

This time we get the board made, the track laid, and the first trams running. Next time we'll get on with some scenery and other developments.

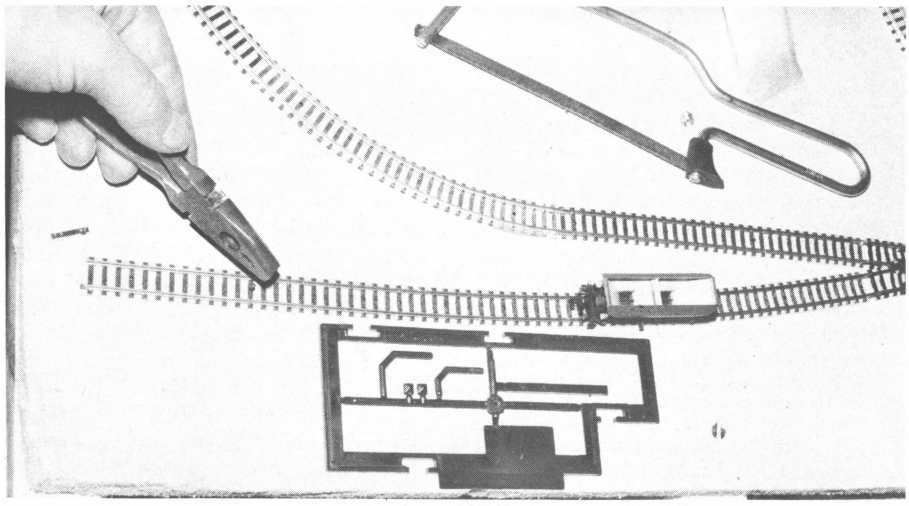


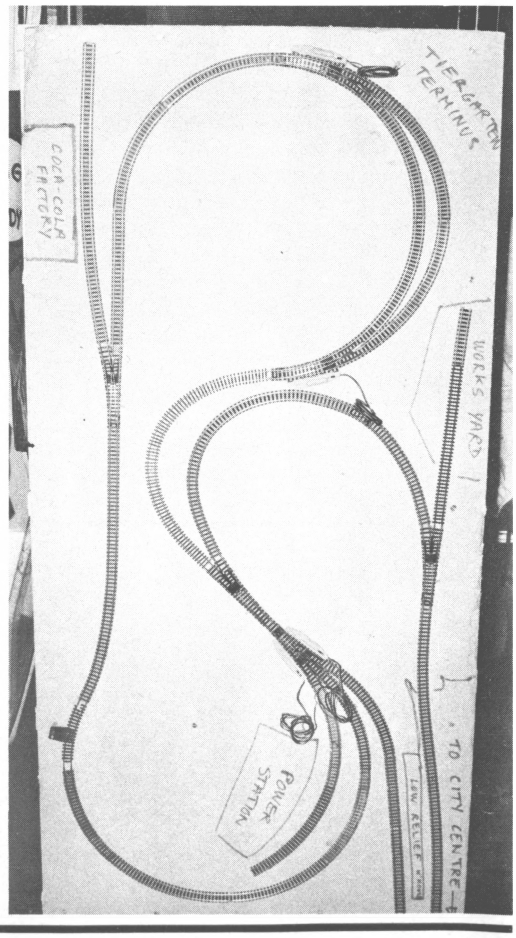


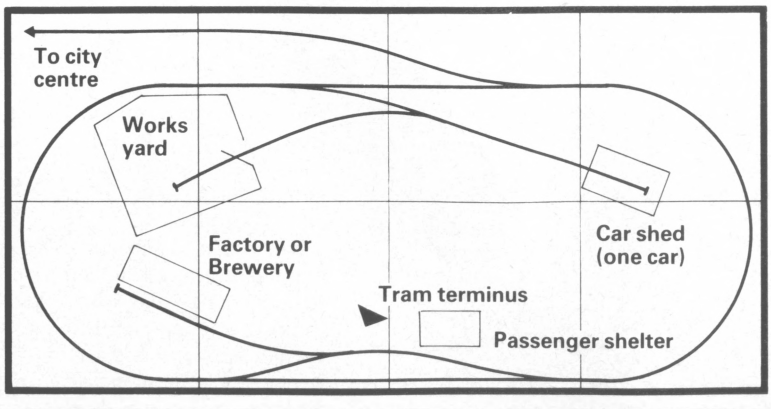
Upper left: *Use two screws and white wood glue for each joint, and a power drill for quick working.* **Left**: *Adding the 4ft x 2ft softboard top. We used chipboard screws for extra grip, three or four to each cross-piece. You can screw up from underneath if preferred, making a neater job.* **Above right**: *The completed board is very light and can be held with one hand. This underside view shows the framing.*

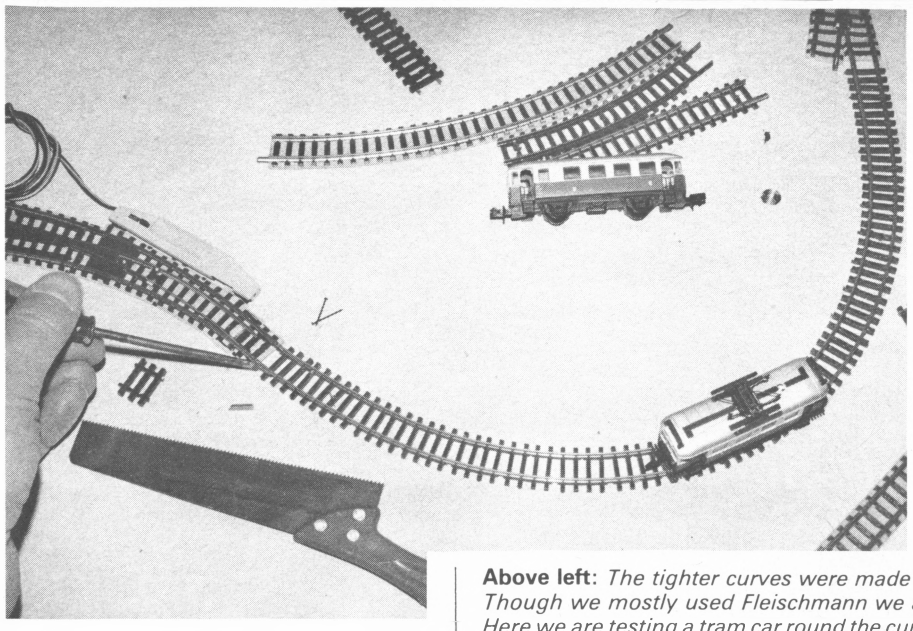
Track requirements: Fleischmann Piccolo turn-outs 9142R, 9142L, 9158 (or 9157), 9139L (two), 9139R; track sections 14 x 9120, 3 x 9106 (flex-track). We used a length of Peco Streamline in place of one 9106 length simply because we had it to hand. Terminal rail 9108 (or a Minitrix terminal rail which we preferred).

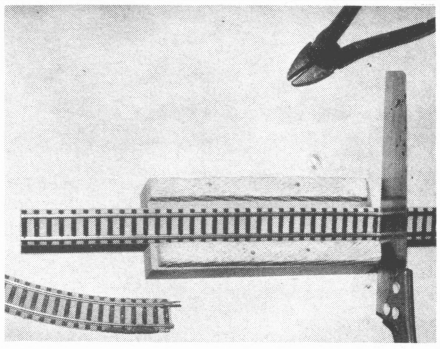
Below left: *Start laying track with the Tiergarten loop. Here all the track is from standard Fleischmann Piccolo sections, but the Coca-Cola factory siding is from Fleischmann flex-track. Here we are pinning it in place, using the base moulding of the Heljan factory to ensure it all fits on the board.* **Below**: *When track laying is complete you can still operate the layout without scenery or structures. Here we have used a marker pen to indicate future buildings, both to aid imagination and as a guide for future work.*

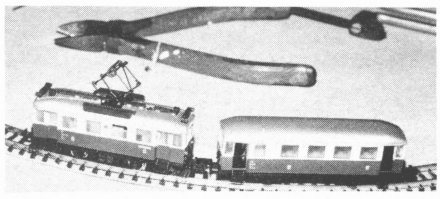




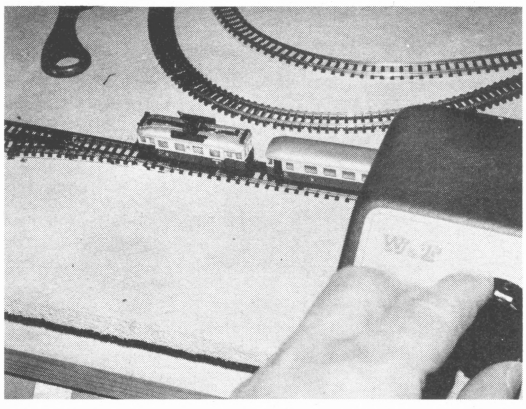




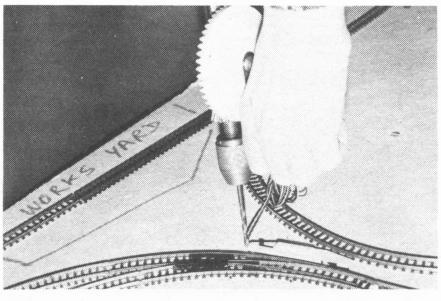


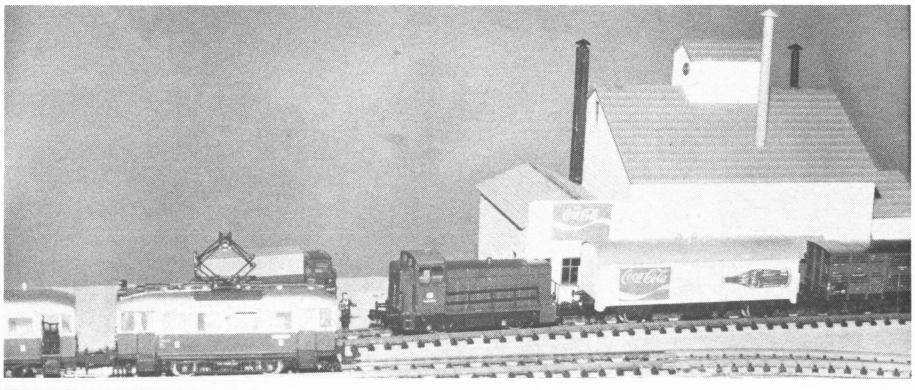


Above left: *The tighter curves were made with flex-track cut to the required lengths to fit. Though we mostly used Fleischmann we also used Peco Streamline which matches well. Here we are testing a tram car round the curve before finally pinning a length in place.* **Upper right:** *For cutting flex-track use a razor-saw or small hacksaw with careful movements. A small wood block is handy for holding the track while sawing.* **Above right:** *Try each section of track by running stock over each rail join before proceeding to the next section. Check that rail joiners are correctly affixed and that there are no kinked joins.*

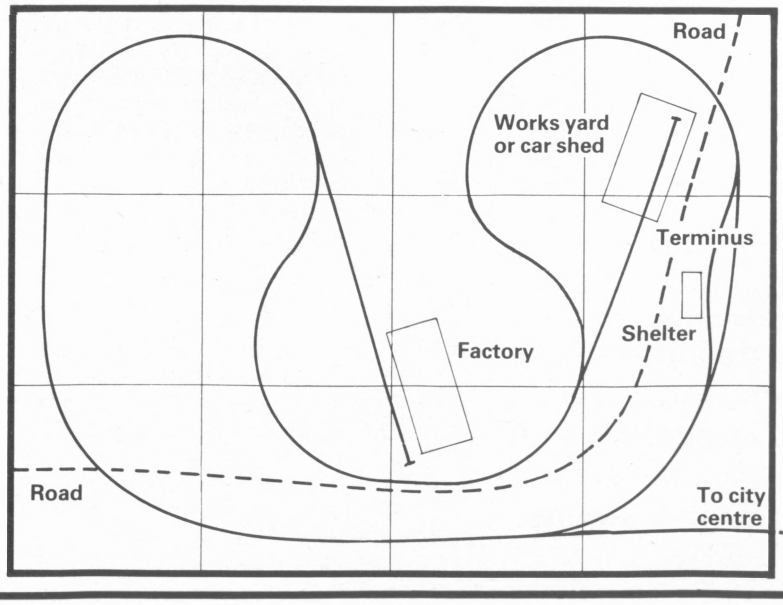


Left: *With the track layout complete we plugged in a controller and made extensive runs all over the system to ensure there were no dead spots. In our case everything worked perfectly from the start.* **Lower left:** *Last task was to use a small hand drill to pierce holes in the baseboard alongside each point motor. The leads can then be pushed under the baseboard and taped out of sight until we are ready to wire up for remote working. If you use hand-thrown turn-outs this stage is, obviously omitted.* **Below:** *It took very little time to start operating. The first structure on the layout is the Coca-Cola plant, a simple adaptation of the Heljan factory No. 670 with roof piping omitted and a new chimney added. The Arnold V45 shunter stands in the siding with the first delivery of crates and bottles and waits to head back to the DB freight yard at the Hauptbahnhof, which it will do as soon as the tram and trailer has cleared the turn-out on its way to the Tiergarten terminus.*





B



If you want to work in 00/H0 you can still get a tramway in very little space, following the general procedures given here. Shown on these pages are two 'pocket handkerchief' layouts worth thinking about.

A. This measures only 4ft x 2ft (ie, same areas as we are using in N scale) yet you can still work well in 00/H0. This plan is drawn to use ordinary Roco 10 inch radius (R5) track sections, plus Airfix, Mainline, Fleischmann or Peco Setrack small radius turn-outs, and assorted straights, curves, halves, and quarters to suit (depending on the turn-outs used). It works well — we've tried it — and can be extended later to a proper fiddle yard or another board. The 'city centre' track acts as a fiddle yard as drawn. Scenery to suit, though we commend a country setting.

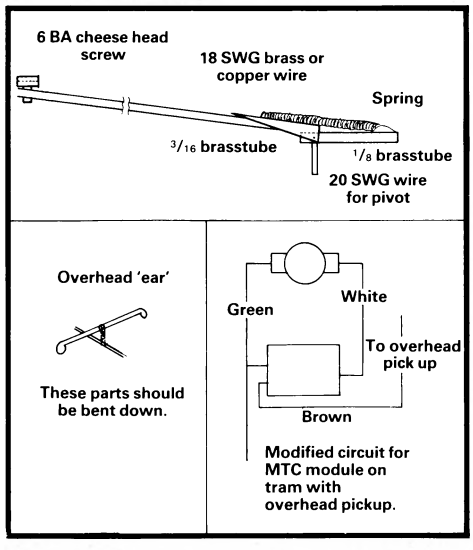
B. A more ambitious scheme for 4ft x 3ft. It gives a similar scheme to the Tiergarten layout. It is designed to use Peco Streamline Flex-track curved to sharp radius (which can be varied a little as desired) and the shortest radius Setrack turn-outs (Ys could be used). Suggested road position is shown, but scenic finishing could be as preferred, town or country or suburban.

Both plans could be adapted to larger or smaller scales.

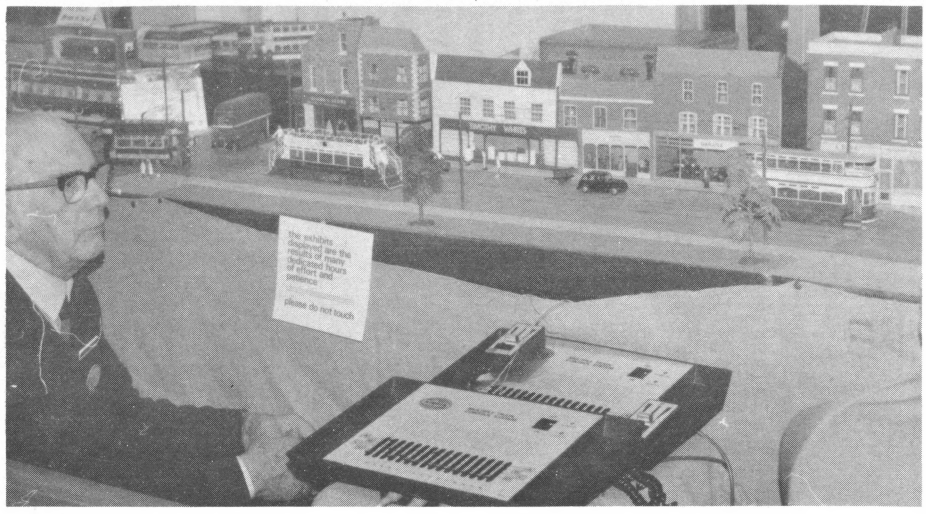
MTC = Multiple Tram Control

D. Norton describes how the tram modelling group of Carshalton and Sutton MRC build and operate their 0 gauge trams.

It is in model form that the splendour of the British tram can be re-created. There are various scales to choose from, but the popular spread is from ¾ inch to 1 foot down to 2mm (or N) scale. At Carshalton & Sutton MRC, the tram modelling group has standardised on 7mm to 1 foot — in other words 0 gauge. Aside from anything else, this puts a vast range of 1:43 scale road vehicles, figures, and other 0 gauge railway accessories at our disposal. And obviously it ties in nicely with conventional 0 gauge model railways. Working in 0 gauge almost all vehicles have to be scratch-built though it is possible in some circumstances to use small powered chassis (such as the Lima diesel shunter) if the prototype you select is suitable. In most cases, however, all the chassis and running gear parts must be scratch-built, or adapted from other sources. Almost any material can be used for bodies, from cocoa tins through nickel silver, card, plastic card, or wood. You need tools to suit your chosen material, of course. Card or plastic card and wood are the easiest materials for the average modeller to use. If you want to have a go at an 0 gauge tram we can't really tell you everything in one short article, but with card or wood to hand cheaply it won't cost you much to try a bit of simple body building.



First find your scale drawing — easier said than done, but some of the references listed will yield them and they have very occasionally been published in the model railway press over the years. Lay down your card, then a sheet of carbon paper carbon side down, with the scale drawing on top, all pinned or clipped together to stop movement. After each section is traced out, however, you may want to move the card to utilise it most economically before proceeding with the next part. The lower saloon (if a double decker) is best to start with and a 4H pencil is used, with a steel ruler to mark the edge for cutting. Having marked out all the parts — sides, ends, quarters, etc — proceed to cut out all the



Above: *Here are Carshalton & Sutton MRC's trams running under Multiple Tram Control (Airfix MTC) at a recent exhibition. This is an ideal form of control for trams running at close intervals in city streets.* **Below:** *Latest club idea is Multiple Trolleybus Control! Using two wires on the overhead it works well and is still being developed.*

parts, and it is easiest to cut out window apertures first. For a first attempt you may like to try something simple like a single deck service car with boarded up sides, making both assembly and finishing rather easier to start with than a passenger car with ornate livery and interior detail. Framing and strengthening pieces will be required, particularly for older cars with tumblehome undersides. Glue the framing to the sides and leave under a weight to set without warping.

Floors and ceilings are best made from 1/8in x 3in x 3ft obechi or spruce. This is obtainable from model aircraft shops. Mark and cut out the shape of floors, roofs, or ceilings as for the body sides, though in the floor a cut-out will be required for the motor. Glue the completed sides to the lower saloon floor. The end platforms are usually set about 1/8 inch (in 7mm scale) lower than the saloon floor. Balsa wood can be used for the control stands with controller and handbrake levers from wire. We use brassy foil wrapping from some sweets for brass trim work at the ends.

Plastic clear sheet is used for the window (as sold in hobby shops). Check the brand first, however, as some types react to glue or heat in an adverse way. Internal decorations now follow to suit. The interiors of most British trams were in light oak finish with cream ceilings. White is a good substitute for cream as it reflects light to show off the interior detail better, and it tends to 'yellow' with age in any case. For seats we simply use balsa wood — 4in x 1/16in for the squabs, 3/8in x 1/6in for the backs, and ¼in cubes for the supports (7mm scale dimensions). Light sanding and shaping, and a light brown paint finish

makes provision of seats an easier job than you might suppose.

Upper decks require similar treatment to lower saloons, but the floor is level from end to end. Handrails are best made from tinned copper wire of 0.29in diameter. Grabrails on stairs and platforms are usually brass. Stairs are made from plastic card. Mark out all the treads, and cut a strip 5mm wide for all the risers. Glue treads and risers in pairs at roughly 90 degrees and repeat until the staircase is completed except for the stringers and sides. Lay the stair edges on the plastic card sheet and proceed the glue the joints again. First the outer stringer is done, then the inner one is glued up. Care is needed here, of course, with careful measuring to get the fit and angles just right.

All roofs are curved to assist rain water to run off. The trolley is placed centrally, but not always. The LCC B class cars had theirs offset to one side in open-top days. You can make your own poles from 16 or 18SWG brass or copper wire. Loop one end for a 6BA cheesehead screw to swivel in. Small bore brass tube cut to size and shape, and with a small spring (such as from a cigarette lighter) will suffice for the pivot and for lifting the trolley pole upwards. Or you can take an easier way out and buy a ready-made trolley pole. It will be worth it if you successfully get this far. Don't forget the wire lead to the power truck. This can take the form of a handrail (if the design allows) or it can be an ordinary wire lead through the car, but it must be electrically isolated from any metal used in the body or truck.

The truck or trucks (or bogies) are what the body sits on — in other words the running gear. You can make them out of brass sheet. But certain model railway bogie sides are adaptable, for example 00 gauge Gresley LNER coach bogies, are ideal for some twin trucks. In all cases we use K's 16mm 4mm scale tender wheels from tram driving wheels, with 14mm or 12mm for the pony wheels (obviously it all depends on the model subject). We cut the axles in half, then use tight fitting tube as a sleeve to give correct gauge (31mm between the outer surface of the flanges). A parallel vice is needed to press the axles into the tube, and it must be done very gently to avoid distortion or bending. Smiths of Clerkenwell, London, sell some brass tube of 1/8in internal diameter, just right for most 00 scale motor worm wheels. A worm wheel is required on one axle. For the motor there are plenty of 00 types to choose but we prefer the X04, the age-old Triang/Hornby unit as this is just the right size and fits 0 gauge trams very well. This motor is barely visible externally.

Above: *A classic street scene on the club layout. All the cars are made using the methods described here and the structures are scratch-built from card and plastic card. In 00/H0 you can have an easier time as there are plenty of plastic kits for city buildings.* **Left:** *Passengers ride in the cars on the layout — just visible here, but this is not the rush hour so the vehicle is only lightly loaded.*

For track ordinary Code 100 flat bottom rail is soldered to brass sleeper strip or tinplate sleepers, though you can of course use ordinary 0 gauge track, whether Peco, Lima, or Rivarossi. Depends on your requirements. Baseboards we use are conventional but they need to be solidly made for our layout is frequently dismantled and re-erected. For overhead wire 15 amp fuse wire is popular but any copper or brass wire, not hard drawn, will suffice up to 26SWG. The 'ears' which hold up the contact wire is nothing more than a cross of wire with an 1/8in gap between the two lines of the cross. For insulation of one wire from the other, raid your nearest friendly needlework box and borrow some button thread for the span wires. For traction poles at the road side we use 3/16in wood dowels but brass rod could be used. Cut to a length of 7 inches and fix a collar about 1 inch from the lower end. This stops the pole going too far into the baseboard and helps maintain the British legal requirements of 20ft scale clearance for the overhead wiring and the road surface.

Now to control your finished tram model. Controllers of the conventional 'train set' type will do, but with any 12V DC system much sectionalising is required to run trams in a city setting if you want them to run close behind each other as in real life. One lead goes from the controller to the overhead wire and the other lead returns from the track to the controller via a mass of section switchers, jumper cables, multiple sockets and plugs. Unless you are a whizz kid with circuits you tend to get lost and lose heart. However, now you don't need to worry any more about such things for the 'new technology' of the independent train control systems, such as MTC, Zero-1, etc — can be harnessed to running trams. It takes all the complication out of life for the ability now to run trams close behind each other is immediately availble to all. We use MTC (to us it means Multiple Tram Control) and it meets our requirements very nicely. Follow the Airifx MTC instructions carefully if you adopt it as well, but remember we will not be using two rail current collection but what is basically a three-rail set-up, the third 'rail' being the overhead wire. Thus, in connecting the MTC module to your tram, the brown wire will be connected to the trolley. Fixing the module will depend on your model but with 0 gauge trams most have plenty of space under the chassis and the module doesn't really intrude, but you must remember to fix it so that you still have access to the screw driver slot in case you want to re-tune the module to run on another layout. One other point to make is that anyone starting off with trams right now could adopt MTC from the start, rig the overhead as a non-working dummy arrangement, and run the trams two-rail as you would with trains.

Our big layout has run at recent exhibitions, including an intensive three days virtually non-stop and all went perfectly with up to eight trams in motion following each other down our model city street. While all our experience is in 0 gauge there is no reason why MTC should not be used with 00 gauge model as well in cars which have room to hold the module — which should be virtually all of them.

Useful addresses

Modern Tramway magazine, published by Ian Allan Ltd, is the journal of the Light Rail Transit Association and covers mainly modern tramways, naturally, including overseas.

The Tramway Museum Society, Crich, Near Matlock, Derbyshire must be visited by all who have any interest in trams or newcomers who wish to savour trams at first hand. Some 40 preserved vehicles are to be seen, many of them running.

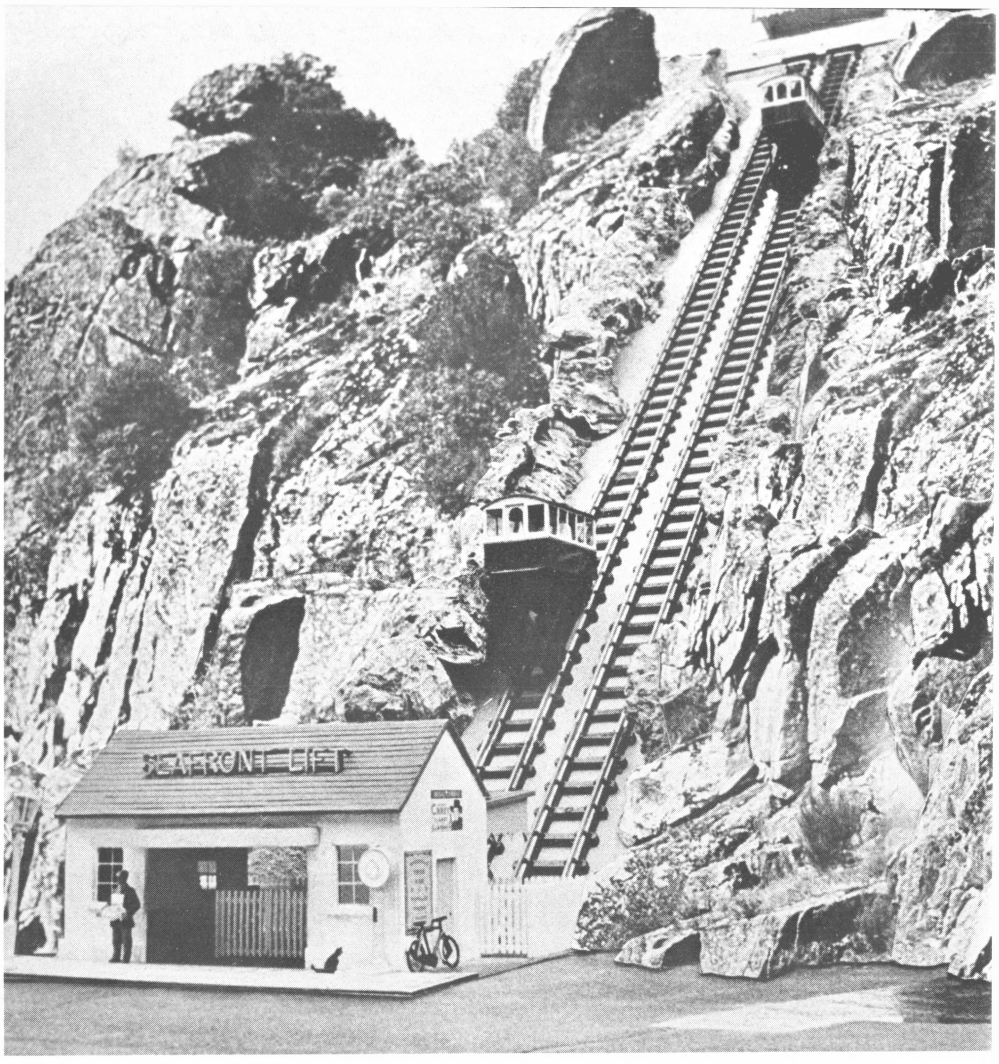
The Tramway and Light Railway Society are mainly known for the superb ¾ inch to 1 foot scale trams seen at various exhibitions and museums in Britain. Hon Secretary is H.J. Leach, 6 The Woodlands, Brightlingsea, Colchester, Essex (SAE for details).

T. Russell, Chaceside, St Leonards Ave, Horsham, Sussex, is a specialist supplier of 7mm scale tram parts and scale drawings (SAE to him for lists).

Lens of Sutton, 4 Westmead Rd, Sutton, Surrey, can supply many post cards of trams, and they also stock tramways books.

Pamlin Prints of Croydon produce a range of 'old time' transport post cards which include some good tram pictures. Certain newsagents and hobby shops stock these. Trains and buses are also to be found in this useful pictorial range.

R. Meadowcroft Models, 277 Keighley Road, Colne, Lancs BB8 7HD, produces a fine range of overhead equipment in all styles of 00 and 0, plus trolleys, 0 gauge tram wheels, and many other useful items. Send SAE for illustrated list.



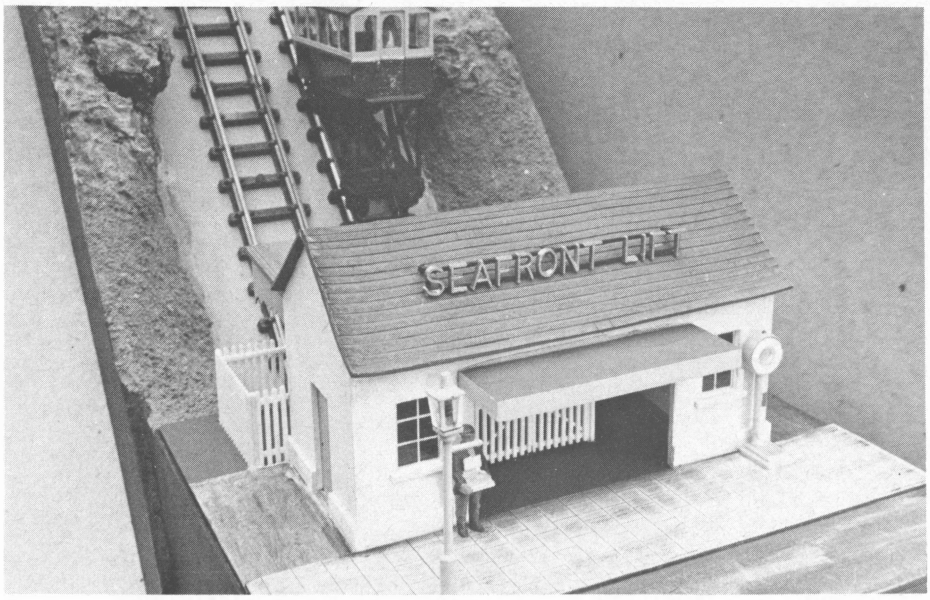
1

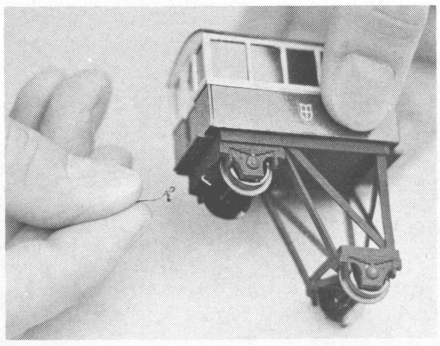
How about a tramway up a cliff ?

Paul King solves the space problem by making a vertical tranmody layout!

The photographs show all the points mentioned in the text. (1) A typical scenic setting on a cliff face — this is actually done with a photographic background for effect but the same can be done with usual scenic work. (2) Close view of one of the cars showing chopped up bogie, hook, and cable. (3) The lower station is a fine model in its own right. (4) Close view shows how simplicity pays off. Match seller in the entrance is a nice 1930s touch. (5) More general view of the lower station. (6) Cars pass on the cliff — note drivers and Hornby Series 3 track. (7) The upper station house the motor and has a side access. (8) Inside the upper station, with old Hornby motor driving the capstan via gearing. (9) The layout complete this time without the scenic background. Simple scratch-built station buildings could be copied for any tram or branch line rail layout. Photos by Bernard King.

3





2

The entrance hall is lined with 'ship-lap' style boarding simulated with overlapping plastic strips glued to the main-wall card section using liquid plastic cement. On one wall of the entrance hall, a pay-box opening was included. Overlapping, vertically scribed plastic strips were simarly employed for the roofing. An essential ingredient of the cliff tramway atmosphere was the large lettering set on a metal frame and mounted on the roof of the building. Here, Slater's plastic letters proved to be ideal for the purpose with the mounting frame being made from plastic strips. The sign was completed by painting the

One of the most impressive aspects of childhood visits to Hastings was the cliff tramways. Whilst it has always been a wish of mine to build a model railway, when time was available space was at a premium. The construction of a model cliff tramway was to be an easy solution to the problem. Based only very loosely on the Hastings cliff tramways, the architectural look of my buildings is more in keeping with the style of building encountered at the more commercial seaside resorts. The general appearance aimed at was light-coloured stucco, rather tired-looking, even dreary buildings. There is some similarity to a normal railway station as the buildings have canopies which extend over the platforms. The design of these canopies was based on available card kits but were constructed from scratch with proprietary photo-etched canopy edges added for effect.

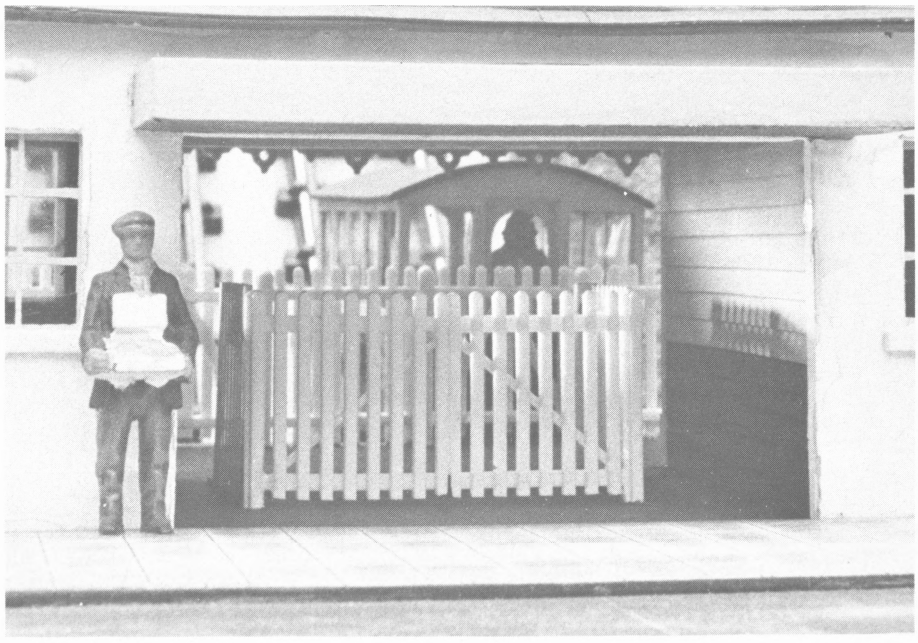
For the main construction of the walls card was used; an inexpensive 'mounting' board from an art shop proved to be quite satisfactory for this job. Transparent plastic material was employed for the windows with the window frames being ruled-in with a ruling pen using slightly diluted Humbrol paint (poster colour or emulsion paint could also be used). The windows were, of course, set in place before assembly of the buildings.

letters the traditional colour — gold.

The design of the entrance hall of the lower building is such that a further piece of atmosphere is created. I can well remember the feeling of anticipation of the ride as we approached the tramway through the entrance hall at Hastings.

This has been preserved on the model by the use of a straight-through entrance hall. As one views the model at the lower end, through the opening, a very real cliff tramway atmosphere is present especially as the cars move in and out of position at the platform. A further enhancement of atmosphere is maintained by the judicious use of embellishments; a weighing machine stands near the entrance, period cinema posters adorn the stucco walls and white fencing restricts the holiday-maker from straying out of bounds. The fences were of particular interest as the Ratio GWR fencing kit fitted appropriately into the model. At the lower entrance hall, a slight modification was applied to the fence by shortening at the lower edge and adding a diagonal bracing to simulate gates.

No 'through' entrance vestibule was possible at the upper station a the building forms the housing for the motor mechanism. Passenger access to and from the cars is made along passages at the side of the building thus keeping clear the centre for the power equipment. Smooth operation of the cars was not easily achieved, the most difficult problem being the irregular juddering of the cars caused by the fouling of the cable against itself as it wrapped twice around the capstan. A single turn proved to have



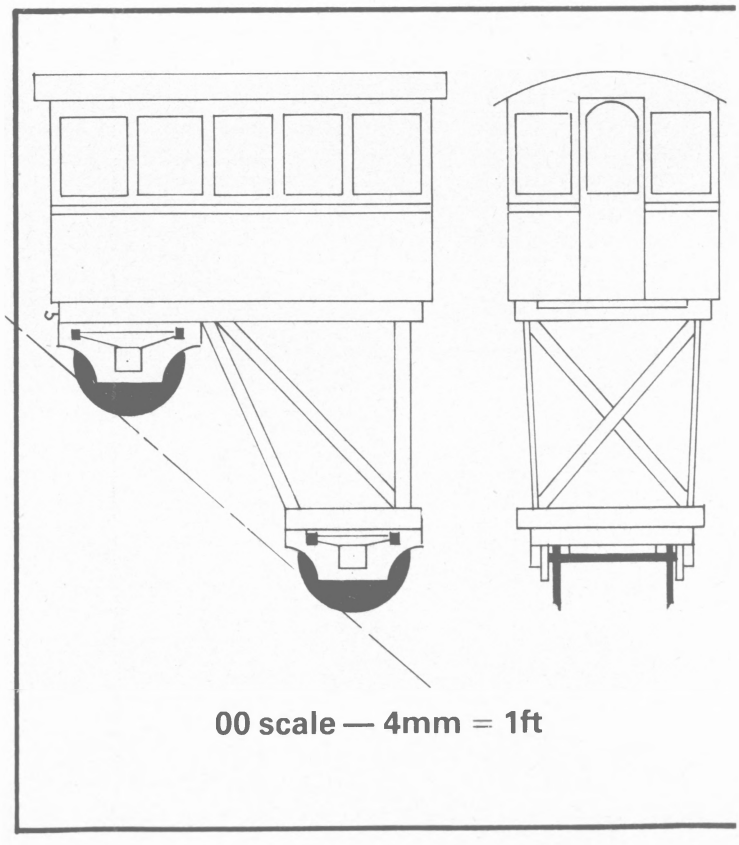
4

insufficient grip thus causing slippage but with the application of a small piece of 600 grade waterproof abrasive paper to the capstan a firm grip was achieved. In cutting this piece of paper care had to be taken that its length was exactly equal to the circumference of the capstan with no overlap or gap. Thixofix adhesive was used to attach the abrasive material to the capstan.

After making several experiments, dressmaking cotton proved to be the most satisfactory traction cable the length of which was critical as each of the cars must be precisely at the station platform at one time. The alignment of the cable had to be carefully set so as not to cause drag on the various items comprising the basement of the upper station building. For this purpose wire guides were used; the 'Ram's horns' were fashioned from heavy gauge copper wire. This device is identical to that found as cotton guides on almost all domestic sewing machines.

The motor on my model is an old 3-pole Triang XT60 working through a worm drive on to the capstan but if I were to undertake a further tramway, a 5-pole motor with a higher reduction gear would be preferred so that a higher motor speed could be gained with a subsequent higher degree of speed control over the cars. The control of the cars is via an ordinary model railway control unit.

One of the characteristics of cliff tramway is the way water gathers at the bottom end and this has to be included in the model. I knew of only



00 scale — 4mm = 1ft

5

6

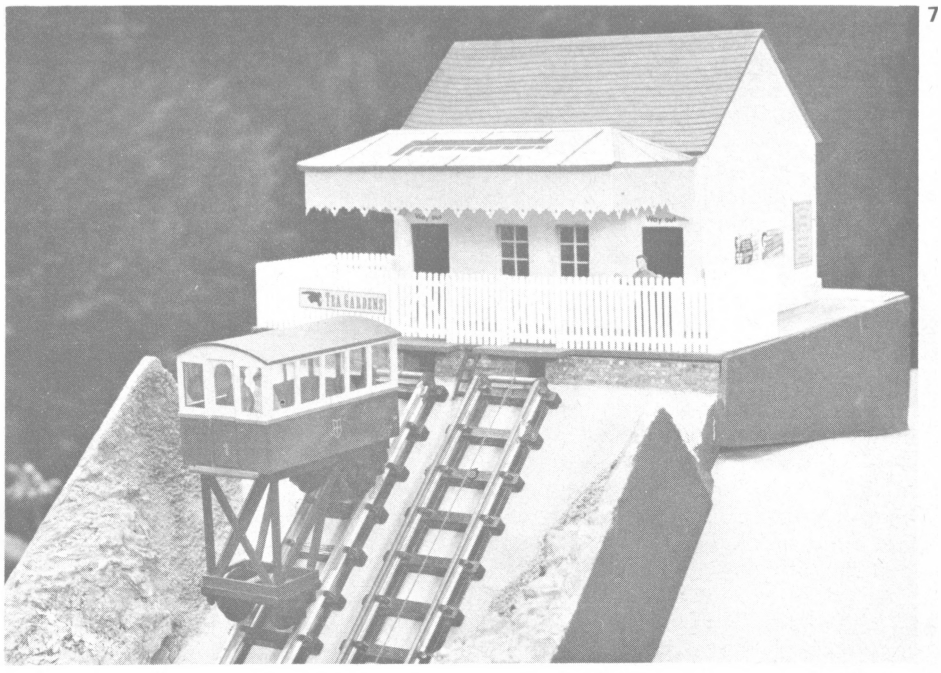
one way to achieve this effect and it has proved to be effective on the model. First the 'pit' area at the lower end of the tracks was painted with oil paints to give a dirty look. To this, when dry, was added several coats of gloss varnish. During this process a few flecks of Green scatter material were dropped on to the wet varnish to represent weeds. Whilst dealing with the effects of the weather, mention should be made of the treatment to the roof to simulate dirt. The roof areas, after painting with matt dark grey oil paint, were brushed over with an extremely dilute mixture of water and black water colour paint. It should be emphasised that the dilution should be very weak indeed. The mixed colour was allowed to lay and dry to form 'tide-marks' in low areas such as crevices and hollows.

The cars are not modelled on any particular prototype; they are, in fact, a simple freelance design. Made from good quality thin card, Bristol board in this case, the design included the required small door at each end of the car. The framework under the body was also of freelance origin. Its main ingredient being a rather non-descript coach bogie in plastic which I cut into two sections. One section is attached directly to the car whilst the other is mounted on to a framework the height of which is appropriate to the slope of the track. To simplify matters, perhaps an angle of 45 degrees could be recommended for the slope of the track. I can't remember the make of bogie I used, but any old coach bogies would do. The car's framework is merely a structure of plastic strips comprising of four legs braced by diagonal strips to form a rigid unit.

The cars should not be permanently attached to their towing cables and for this purpose a small hook was furnished on the car to which was attached the tow-cable by means of a small loop in the cotton. Once again, the livery of the cars was freelance. The colours chosen were maroon and cream embellished with old-time style numbers and crests from my spare transfers. To give the cars life, 4mm plastic figures were painted and fitted into the cars before assembly of the roofs. It was felt that the most natural place to set the standing passengers was at the end of the cars where they could admire the magnificent view so often offered by a ride on a cliff tramway.

The track was chosen for its non-scale appearance. I had some old Triang Series 3 00 gauge track from an earlier model railway layout and the widely spaced sleepers were particularly suitable for this purpose. Half-inch thickness chipboard forms the baseboard of the slope on to which the tracks are fixed with small nails. The width of the slope is 6 inches, being the width of the piece of chipboard on sale cheaply in the off-cut rack at the local timber shop. Having completed the model it is now evident that a board something in the region of a foot wide would have offered much more scope of interesting landscaping at the sides of the track. Although restricted in this respect with a 6 inch board, a satisfactory scenic effect was achieved with the use of cork bar, Polyfilla and green scatter material. It was discovered, incidentally, that the cork bark bought at a local garden centre was much cheaper, ounce for ounce, than that purchased as a railway model accessory. At the ends of the slope Builder Plus brick paper completes the scenic effect.

One further refinement on any future cliff tramway I may build would certainly be the use of a Seuthe 99 smoke generator. This unit fitted below a chimney on the upper station building would give a most realistic final touch and would be so reminiscent of the puffing of the cliff tramway chimney I remember at Hastings. Obviously a cliff railway like this could be an added working scenic feature on any big layout, but if you are tight for space and still want a working layout you should be able to fit this into not much more than 1 square foot of floor area!



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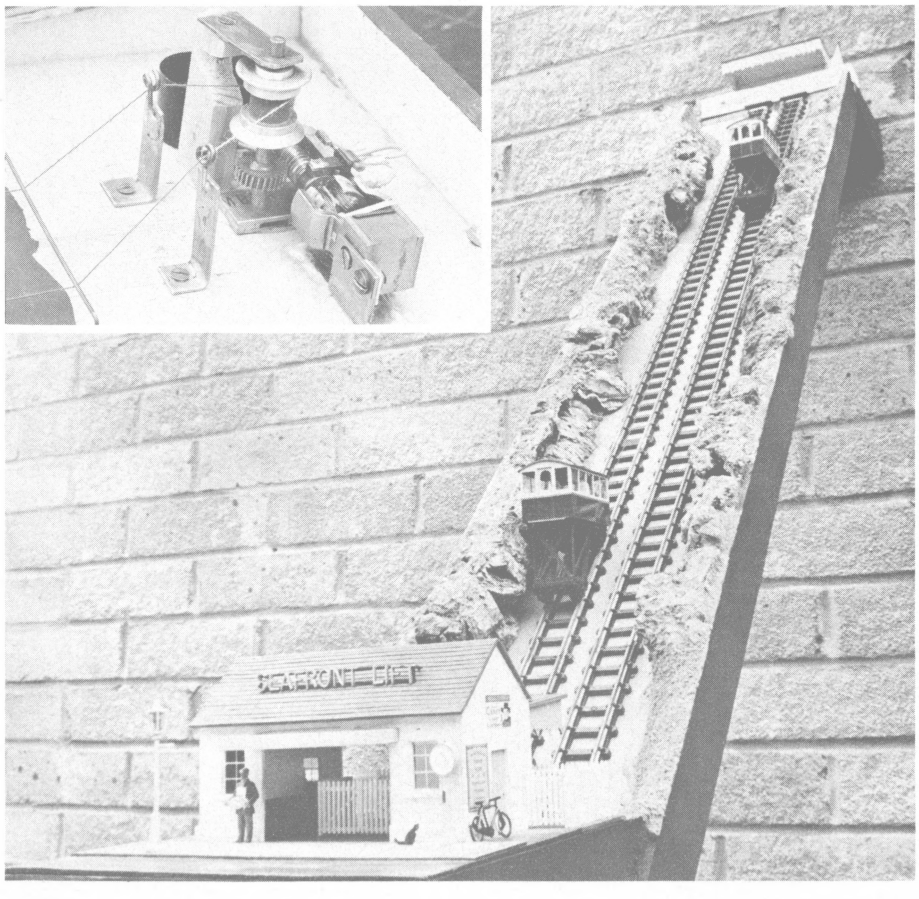

9

THE SOUTHFLEET BRANCH

Basis for a layout

Dave Larkin looks at a modern branchline which operated Merry-go-Round trains, ideal if you favour up-to-the-minute hard working diesel locomotive operation.

Southfleet, Kent, was the intermediate station on the ex-London, Chatham & Dover branch line to Gravesend West. The passenger service was withdrawn in the early 1950s but freight continued to be handled for about another 10 years, finally succumbing by 1968. The line was not lifted and remained derelict for another three years, when it was given a new lease of life.

There are many cement works in this part of Kent and the largest owning company is the Associated Portland Cement Manufacturers Co Ltd. This company, in conjunction with BR, chose Southfleet as an appropriate site for a terminal from which to supply its smaller cement works with coal, as by this time they had opened their Northfleet works which is served by Merry-go-Round coal trains. Southfleet was a good choice as it is situated about half a mile from the A2 London to Dover trunk road and is thus in easy access of the lorries which were to deliver the coal.

The very minimum of site-clearance was done and the original passing loop, together with the grass-grown remnants of the island platform within this (closed in the 1950s, you will recall), survived. At the end of the loop facing Gravesend was a spur lead on to a wagon tippler (see photo 1). Beyond this, the tippler line rejoined the old branch line and carried on for about half a mile to just beyond the A2 where buffer stops were erected and the remaining line towards Gravesend lifted. The line crossed the A2 on two girder bridges and an extremely interesting arrangement was found here, caused by the dualling of the A2 at this point. The original bridge was single-line and this was the nearer of the two to Southfleet. The new bridge was double-line for inscrutable reasons. Perhaps BR intended re-opening and doubling the line at one time.

(2) 45 049 The Staffordshire Regiment (The Prince of Wales Own) *leaves with the 1635 Southfleet at Ashford Yard at 1550 on August 21, 1975. It will work this train as far as St Mary Cray where it will berth the empties and attach a loaded train with coal from the Kentish collieries to the LMR, the empties seen here being worked down to Ashford by an SR loco.*

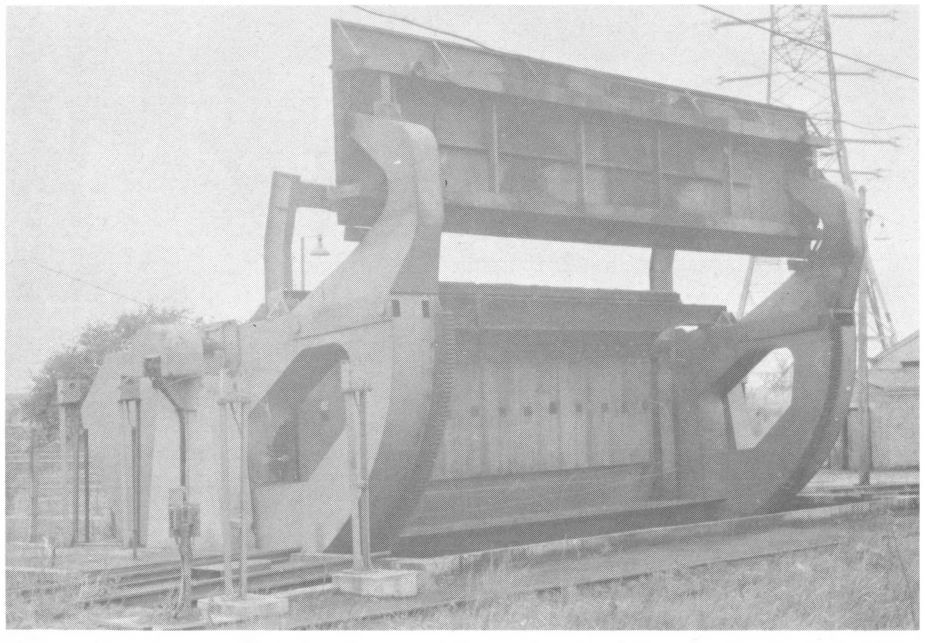
(1) 45 067 arrives with the 0340 Thoresby to Southfleet at 1534 on September 10, 1975. Note that wagons from the previous arrival are still being unloaded. The two conveyor belts can be seen to the left of this view. Note the large number of loaded lorries. The board prohibiting the BR loco from passing over the tippler is prominent centrally and the electrical sub-station is to the left of this.

Returning to Southfleet yard itself, shortly after the tippler road rejoined the original line, the old yard connection was passed. This was a trailing connection for Gravesend-bound trains and a short spur was kept. An engine shed (see photo 2) was erected some distance from the points but the line actually passed beyond this a short distance. APCM provided a diesel shunter and this was housed in the shed. Presumably the line beyond was used to service and fuel the loco (there being a fuel tank adjacent to it) and also to effect minor repairs to rolling stock.

This completed all the track-work for the site and it is, I think you will agree, a very simple set-up. From the wagon tippler, a conveyor belt, mounted in a concrete well, carried the coal at right-angles to the line to the centre of the old goods yard and to the bottom of a second conveyor-belt. This second has three bottom discharge points with which to load road vehicles and this just about completes the facilities. There were a number of huts scattered about the site, such as the road weighbridge and the mess room, and there was a small electrical sub-station, for power. The fuel tank referred to previously was rather interesting, being an ex-BR departmental creosote tank. It still carries BR number plates and conceivably still belongs to BR (see photo 4).

Although deep in Southern Region territory, the service was extremely

(3) 31 421 is seen passing St Mary Cray Junction with the 1635 Southfleet to Ashford Yard empties on April 25 1975. Note that although most of the wagons are dark (indicating bauxite livery for a vacuum-fitted wagon), one light-coloured unfitted wagon is visible. In the latter years of the service, only vacuum-braked wagons were permitted on the Southern Region and brake vans were finally dispensed with.

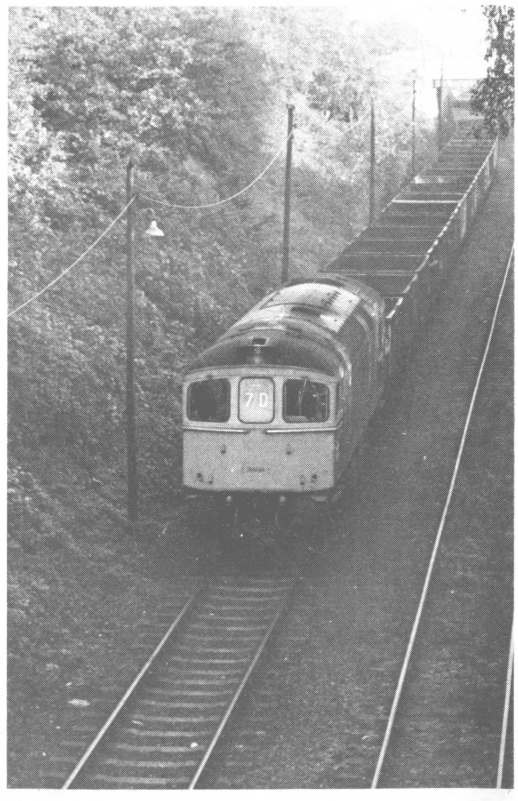


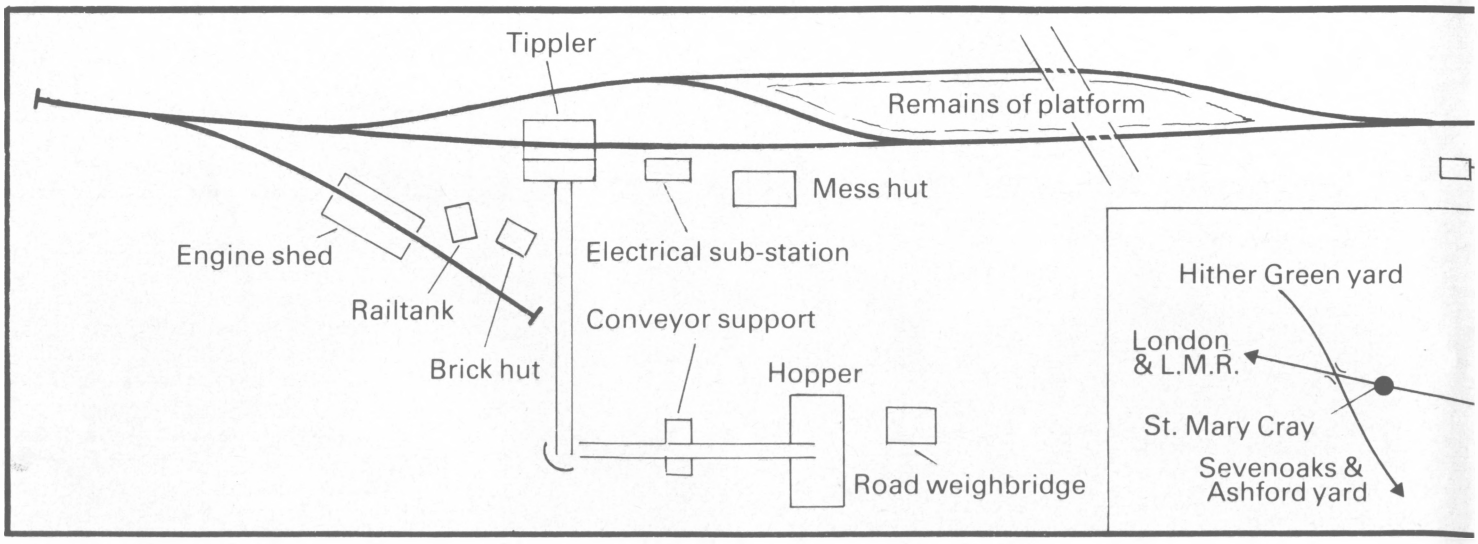
(5) A standard side-tipping wagon tippler was provided and the contents of the wagon were shot into a concrete hopper from which the conveyor picked it up. The tipper is seen here in the 'tipping' position. Note the photo-electric cells to the left of the tippler, which is designed to take wagons up to and including the 24-ton wagon.

interesting in that the majority of the trains were worked by London Midland Region locos. Thus, regular workings with Class 45s (see photo 5) and pairs of Class 25s were to be seen. Not so common were Class 20s and Class 31s (see photo 6). One train of empties a day was handled by SR locos., which arrived light, and a Class 33 would be the regular performer (see Fig 7).

Trains normally arrived on the left-hand or 'down' line. The BR loco would then be uncoupled and run forward on to the tippler-avoiding line, BR locos being forbidden to pass over the tippler. Empty wagons would have been placed beyond the engine shed siding and the BR loco would couple up

(4) 33 065 leaves with the 1038 Southfleet to Ashford Yard empties. The loco having arrived light engine, this train is seen departing from the normal arrival line. It will run to Hither Green yard where it will be reversed. Date is October 22, 1975.

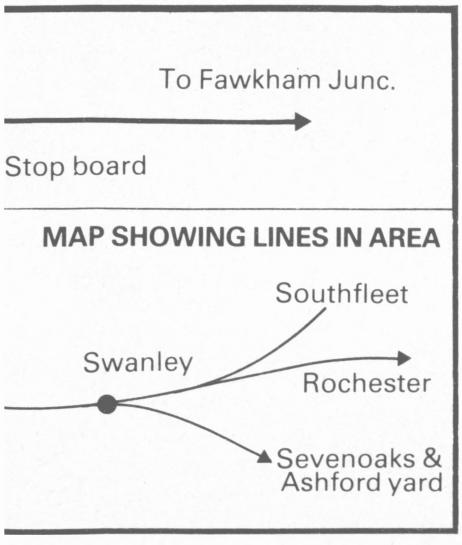


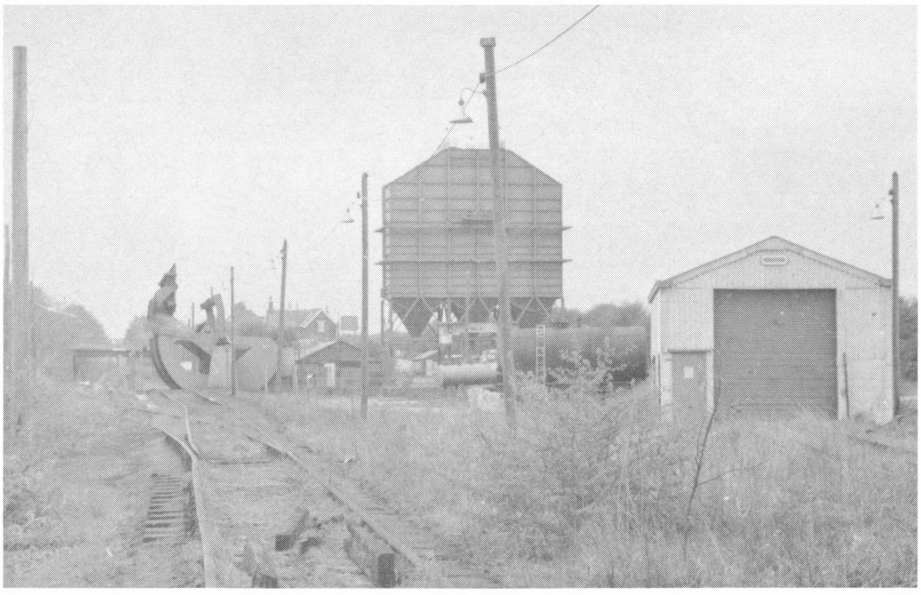


and then draw forward. As trains were not fully-fitted until later, brake vans were necessary but, under normal circumstances, there would be one from the previous arrival. This could be got to the rear of the empty wagons, probably with the assistance of the APCM loco and the train would depart. If no brake van was available, the BR loco, once clear of the run-round points, would reverse the empties on to the brake of the train it had just brought in and depart with this (see photo 8). When there was no incoming train, the BR loco could depart from either line (see photo 7).

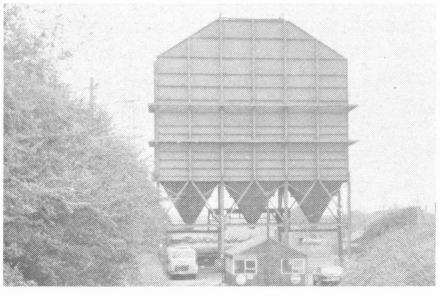
Once the BR loco had departed, the APCM loco would proceed via the right-hand or 'up' line to the rear of the train which had just arrived and push this towards the tippler, until it reached the shunting pulley. This was a device set into the track which, in conjunction with photo-electric cells on either side of the tippler, propelled wagons individually on to and off the tippler, once they had been tipped. The loco was on hand to assist this process and to marshall the empty wagons but, under normal circumstances, the unloading process was automatic. As can be seen, the brake van, unless it had been taken by the departing train, was kept and passed over the tippler (see photo 5 and 8).

Rolling stock was less varied than locos and all trains were composed of standard 16 ton mineral wagons, although the brake van type would vary. Southfleet remained in use until about 1978 when it was closed for a second time. At the time of writing, with the exception of the two conveyor belts, all equipment remains intact. My thanks to Bob Wallace for the loan of the photos showing trains working at Southfleet.

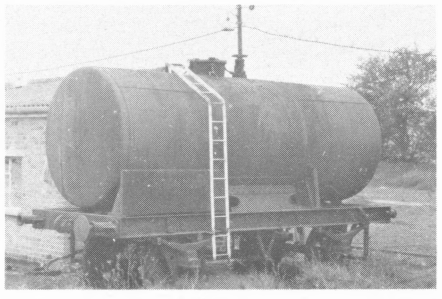




(6) This panoramic view of the site, looking towards London, shows the tippler, the hopper, the fuel tank and, in the right foreground, the engine shed. This latter was built from corrugated asbestos with green doors, which was also the colour of the tippler and hopper.



(7) Hopper from the opposite end and the road weighbridge in front of it. All control was done from the other side and the remains of the control cabin can be seen behind the central discharge chute.



(8) The ex-BR railtank with a small brick-built hut behind this. As all the newer huts are either wooden or asbestos, this may have been a survivor from earlier days. The railtank was not repainted and remains in BR Engineers black.

(9) **Lower left:** *Other end of the engine shed. Crippled wagons were repaired alongside the brick shed, which appears to have been used as a workshop.* **Bottom:** *BR operating instructions.* **Bottom left:** *Track plan (not to scale) which can be adapted to any narrow space. About 8ft minimum length is needed for 00/HO, but it could be 'bent' round a corner.*

Southfleet (APCM) Coal Depot

Complete Train Service, Winter 1974/75

2200	Toton to Southfleet (Train No 7005; LMR loco)	arrives 0610
0900	Southfleet to Toton (Train No 7M44)	departs
	Light Engine (SR loco; Headcode 4E)	arrives 1000
1038	Southfleet to Shepherds Well (Headcode 7D)	departs
2255	Thoresby to Southfleet (Train No 7016; LMR loco)	arrives 1129
	Light Engine (Headcode OM52)	departs
0340	Thoresby to Southfleet (LMR loco; Train No 7021)	arrives 1532
1635	Southfleet to Ashford (Train No 7P78)	departs

FARNINGHAM ROAD (FAWKHAM JUNCTION) TO SOUTHFLEET

The single line between Fawkham Junction and the 'Stop' board 100 feet on the approach side of the facing hand points at Southfleet A.P.C.M. coal depot is worked in accordance with the "Regulations for One Train Working on Single lines", except that on arrival at Southfleet the train staff must be retained by the driver for the return working.

A.P.C.M. COAL DEPOT—This is located at the terminating point of the single line, with access by facing hand points. The following instructions apply:—

1. Down trains must not proceed beyond the 'Stop' board 100 feet on the approach side of the facing hand points without the permission of the shunter.
2. Before authorising the train to pass the 'Stop' board, the shunter must ensure that no movements are being made by the A.P.C.M. locomotive.
3. The train must then be drawn forward to the facing hand points 120 yards before reaching the wagon tippler.
4. After the vehicles have been secured in accordance with Rule 151, the locomotive must be detached and run forward to the wagons awaiting despatch.
5. B.R. locomotives must not pass through the wagon tippler, and notice boards are provided accordingly.
6. During the periods when a B.R. locomotive is working at the depot, the wagon tippler must not be operated and the A.P.C.M. locomotive must be at a stand on the cripple siding. A clear understanding must be reached with the A.P.C.M. staff regarding all movements.
7. The signalman at Farningham Road will advise the shunter when each down train to Southfleet leaves Farningham Road. The shunter must advise the signalman at Farningham Road when each up train leaves Southfleet.

How we made the Westport Branch

Build this 00 gauge layout with Michael Andress Part 6: The Tunnel

Continued from the last five issues

Now we return to the scenery construction with the modelling of the hill and the tunnel passing through it. This work is fairly straightforward using one of various methods of scenery building. Some of these have already been described in this series and in the articles on layout building which have been previously featured in *Model Trains* so I won't spend too much time on them in the text but would instead refer you to the accompanying photographs and their explanatory captions. There are however a few general points worth making about hills and tunnels on model layouts, and I will cover these in a little more detail.

Before I got down to the scenery construction again I completed the ruined watch tower model, using Linka castings. I painted the tower using first of all a basic coat of grey made up by adding a little black powder poster colour to some white matt emulsion paint left over from household decorating. A little thinning with water was needed so that this paint would run into all the grooves between the stones. This provided an excellent sealing coat as well as giving a suitable basic colour. Ordinary poster paints were then employed to touch up individual stones making some slightly lighter and some darker. A little brown was introduced to give slight further variation in tones giving the effect of separate stones and adding to th realism. Touches of green at the base gave the effect of moss and weeds. The door was painted a weathered brown to represent the old wood. When I was satisfied with the result the tower, on its base, was set aside until it could be installed on the hill top.

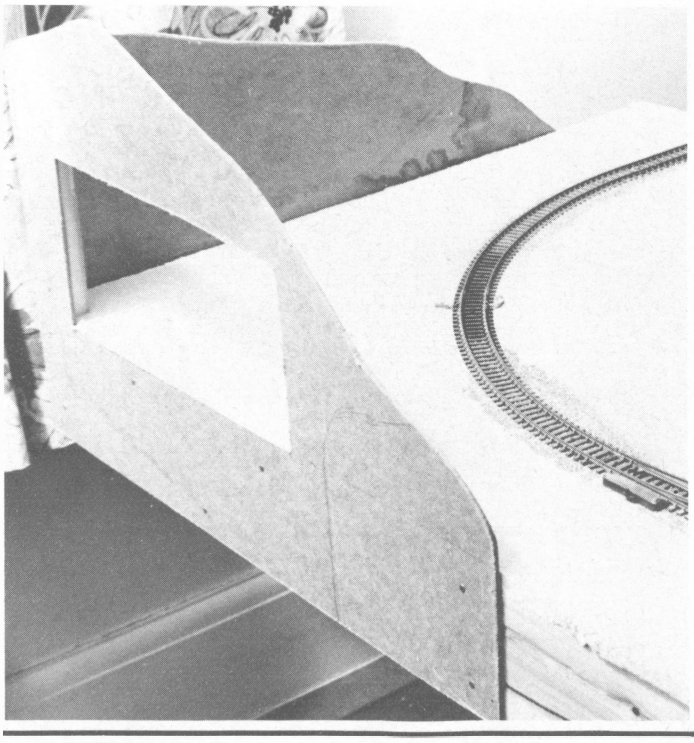
Tunnels are very expensive for real railways to construct and are therefore avoided unless really necessary. On model railways a tunnel can be very useful but to be realistic we must arrange our layout so that the tunnel appears essential because of the contours of the landscape and the route of the line, not just because we wanted to introduce a visual break on our oval of track. To be avoided at all costs therefore is the 'toy train tunnel' running straight through the middle of a tiny round 'hill'! On the Westport branch I placed the hill in the corner of the layout and have tried to give a natural effect with the hill and the harbour, while placing them so that the tunnel seems unavoidable.

Another great important point about tunnels is practical rather than aesthetic. It is absolutely essential to provide proper access to the interior of a tunnel. If there is any point on your layout that you cannot reach easily then inevitably that will be where the train will stick or derail! Extricating it will then be awkward and frustrating and may well lead to damage to the models. As the hill on this layout runs

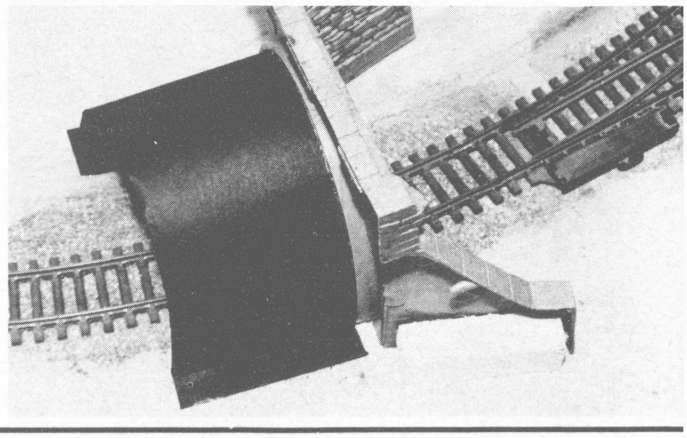
Above: *The completed model of the ruined watch tower built from Linka castings. Note the missing and damaged stones made by chipping away a little of the plaster with a modelling knife point.*

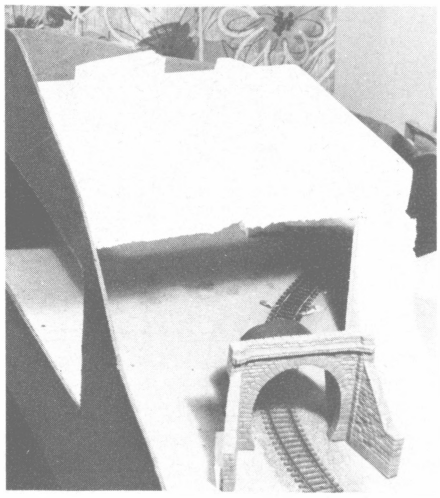
up to the corner I cut and fitted appropriately shaped backing pieces from hardboard to provide a neat finish. It was simple to cut out a rectangle from one these pieces to give easy access to the interior of the hill and the track within the tunnel. If you are modelling a hill in the centre of a layout access is more difficult to arrange and you may need to make part of the top of the hill detachable; the problem then can be concealing the joins though this can be done with appropriately placed hedges and bushes.

A final consideration with regard to realism in modelling tunnels is that we should provide a short lining for the tunnel immediately inside each tunnel mouth.

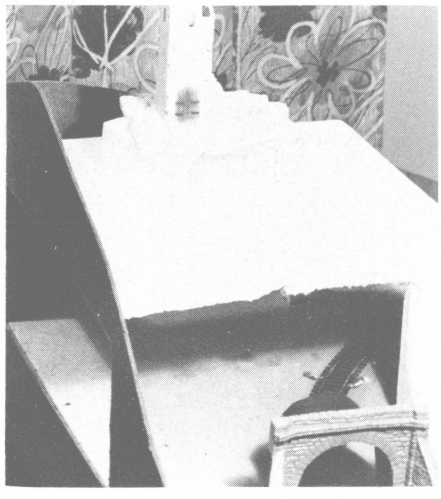


Left: *Profile boards cut from hardboard are nailed and glued to the baseboard edges. A scrap piece of 2mm x 1mm timber has been used to reinforce the corner. Note the rectangular access opening. By cutting this carefully you can use the piece removed to fit back into the opening when access not needed.* **Below**: *Tunnel mouths are Merit. A small block of wood at each side of each portal holds them in position on the baseboard. The black thin card liner is fitted into the groove on the rear face of the portal and the liner was made long enough to allow flaps to be formed at the bottom for cementing in to the baseboard.*





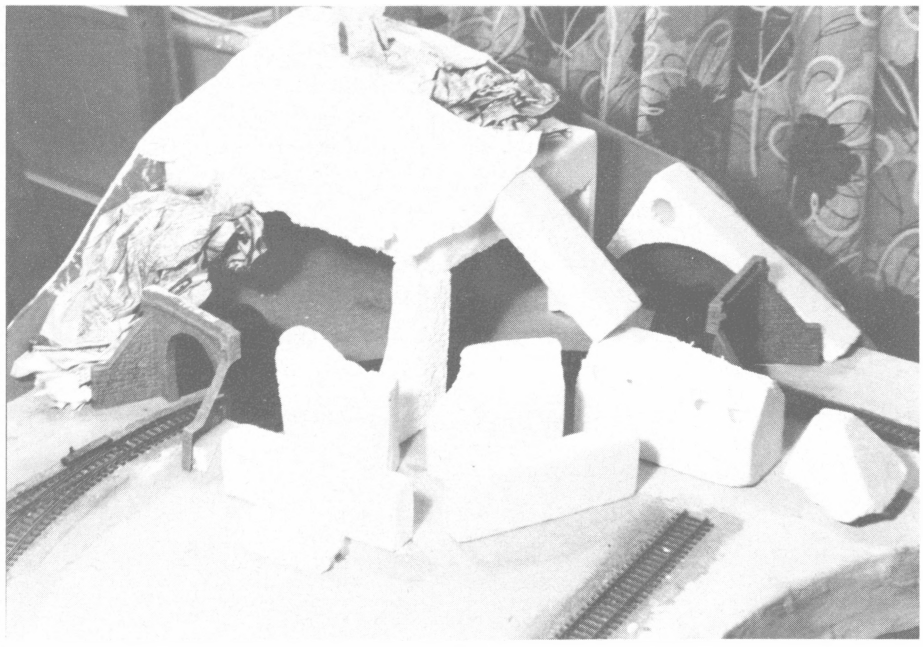
Above: *Scrap pieces of polystyrene foam were fixed down with white glue to cover the track and form a basis for the hill.*



Above: *The watch tower on its base was then mounted on the hill top.*

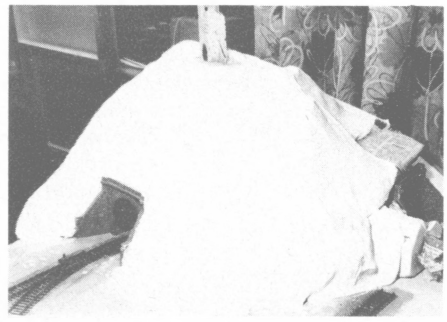
Otherwise anyone looking into the tunnel entrance will be able to see that the hill is hollow spoiling the realism completely! Some of the commercially available moulded plastic tunnel mouths have a curved slot on the rear face so that a card liner can be fitted into it. Alternatively if you make up your own tunnel mouths from Linka castings or from card or plastic card you should arrange for a card liner to fit on to the rear face. The card liners need only be painted dark grey as they will not be very visible but they will act as baffles preventing viewers seeing the interior of the hill. They will also stop any light which enters through access openings being seen from the tunnel entrances.

The hill itself can be built up using any of the usual methods. I had collected a number of pieces of polystyrene foam which had come as packing around various household items and decided to use these as a basic support as they are light but quite strong and are easy to work. The polystyrene foam is easily cut with a saw or knife, or best of all with a hot wire cutter. As the dust from cutting gets everywhere it is a good idea to do the cutting outdoors or at least to have the vacuum cleaner on hand to clear up straight away. To glue pieces of the foam together always use either ceiling tile adhesive or white glue as some other adhesives will attack the plastic. Similarly some paints will dissolve the polystyrene foam; I always use household emulsion as a first coat as it is cheap, does not damage the plastic and provides a good sealing coat. the polystyrene foam can be shaped to produce the ground surface or you can add plaster or Mod-Roc over the plastic if you prefer or if you are using the pieces of plastic only as a basic support for your scenery. Either way the final finish will be with paint and scenic dressings as shown in the pictures, together with lichen for ground cover and bushes.



Above: *Other scrap pieces of polystyrene foam were glued down to form a rough supporting shape for the hill. If desired more foam can be used to form the shape of the hill but here it was merely used as a basis.*

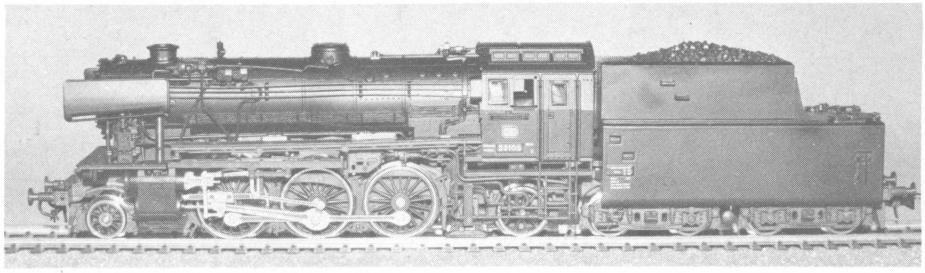
Above: *Newspaper was crumpled up and used to pad this supporting basis to form the desired shape and Mod-Roc was then applied over this starting at the top of the hill. Mod-Roc is sold in ready-to-use packs from most larger model shops.*



Above: *The Mod-Roc material has now been applied over most of the hill. Extra layers are added where necessary to give a realistic contour. A mix of plaster or filler (eg, Polyfilla) coloured with powder poster colour added, using black and brown (eg, burnt umber) was then employed to cover the Mod-Roc giving additional texture and providing a base colour.*

TEST TRACK

In this feature we take a closer look at the selected items which are tested and assessed by the editorial staff or contributors

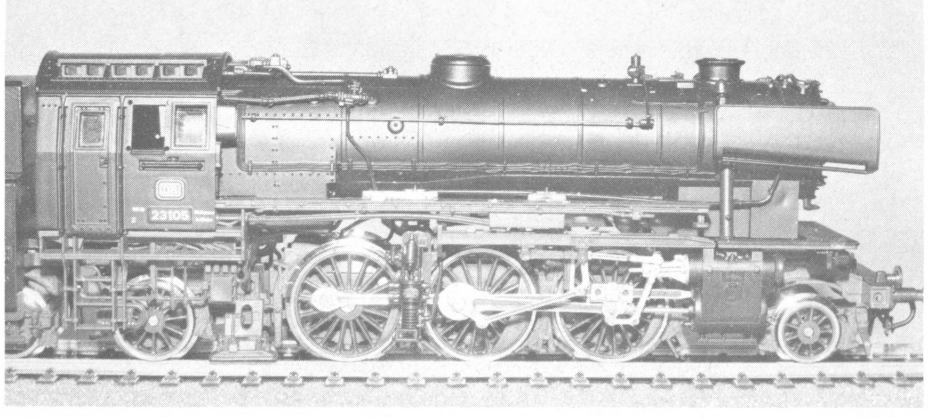


Roco: Class 23 2-6-2, 1:87 scale/H0 gauge, UK £43.40

Right on schedule for December 1980, Roco released their promised model of the DB Class 23 2-6-2, and one of the first to arrive came to us for test. It proves well worth the wait, the only surprise being that it has not been done earlier for it was an important type. Roco's model is the DB (West German) Class 23, not the DR (East German) version — see letter on page 668, December 1980 issue, for more details on this. The Deutsche Bundesbahn Class 23 dates from 1949-50 and like the DR version it was based on the 1941 prototypes, construction of which was supended due to the war. Compared to the original 1941 machines the DB Class 23 looked somewhat simplified in style, notably with a cut-away footplate at the front end.

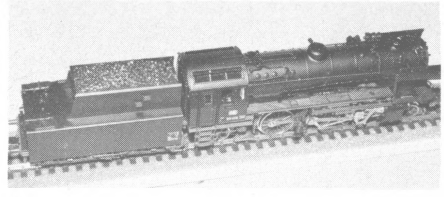
Roco's model is quite a show stopper to look at. Each new Roco model seem to out-do the previous one in terms of fine detail and you can run out of superlatives pretty easily with models like these! Compared with pictures and drawings the model seems to have just about everything, including the wire leads for the electrical circuits, dummy screw couplings at the front, all the correct buffer beam connections and more chassis detail than we have seen on any previous ready-to-run model. Even as supplied the model is impressive, but included also is one pack containing a front auto-coupler of Märklin type which can replace the front dummy coupler, and this pack also includes optional Roco close couplers to replace the standard Märklin type if desired. Next is a second pack containing extra detail parts including grab rails, tender ladders, piston tailrod covers, cabside wind deflectiors, front footplate steps and various other small parts. The instruction sheet shows where they all go. If you wish to use the loco on curves tighter than 415mm radius the piston tailrod covers must be omitted, but all other details can be used.

Finish is immaculate, but the buffers are a force fit and the heads should be cemented in place to avoid future loss. Also there is so much fine detail that great care is needed in getting the model out of its foam packing and putting it back again. The closed cab is fully detailed internally and a packing piece is provide in the box to hold the tender rigid. This must be removed before the loco runs. Like the Liliput Class 42 (last issue), the tender is permanently coupled on a sprung drawbar. It is thus at scale distance for normal running but automatically adjusts on the spring when the loco rounds sharp curves. This is a fine innovation which other makers could well copy.



The tender is powered and the dummy bogies are a rigid eight-wheel drive unit, again like the Liliput Class 42. We were prepared for an excellent running performance and this model turned out to be better even than the Class 42 when it came to slow running. The slowest smooth speed (ie, non-jerking) was so slow we found it hard to believe. On a yard of Peco Streamline track, with a H & M Clipper at high resistance and half wave, it took no less than 5min 54sec to run from end to end of the track yard running forward, and 5min 10sec running back, which is slower even than the Liliput Class 42 and this after no run-in period. The motor is incredibly quiet and the On a small layout it hauled the few wagons we had available with great ease and tracked smoothly through Peco and Roco turn-outs. The gearing is fairly low, and though we did not measure it we got the impression it was geared to give something like a scale speed range. All dimensions checked out as near as made no difference to published data.

The model is numbered as 23 105, the last new steam loco for DB, built by



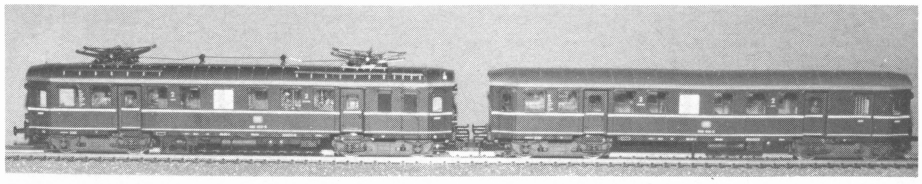
Jung in 1953 and withdrawn in 1971 and now preserved at Neustadt. The real loco was intended for passenger work on commuter, local, and secondary passenger trains, but in practice it was also used sometimes on express passenger and freight work. Tender first running was not uncommon, and this compact model will be at home even on smaller layouts.

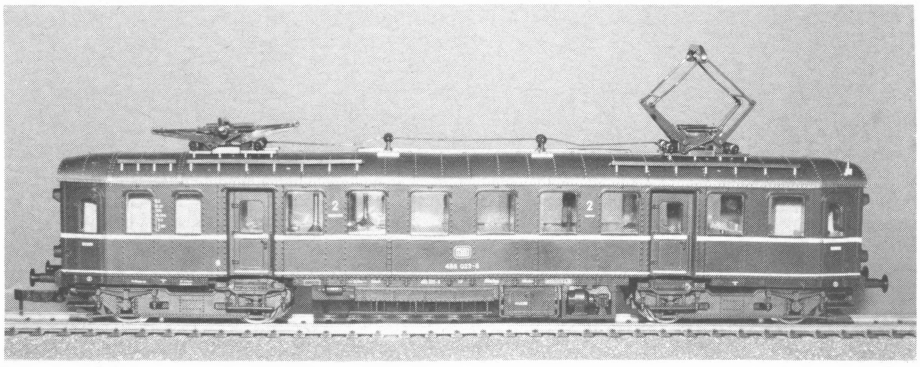
Our sample was kindly loaned by Howes of Oxford, major Roco stockist, who can supply this and other Roco models by mail order.

Roco: DB Class 485 EMU, 1:87 scale/H0 scale, UK £38.85

The other new Roco release lacks the glamour of steam, but it is a vintage electric multiple unit set of great character. This is a model of the DB Class 485 driving power car which comes as a paired unit with a matching Class 885 driving trailer, the two making a delightful and compact (18 inch long) set for commuter and local service. The survivors in the 1970s were working in the Munich and Frieburg areas. The real vehicles were built in the 1927-33 period and were refurbished subsequently but did not change in appearance. The model is in the standard DB dark red and grey scheme of the early 1970s.

As with all other Roco models, the finish is superb. The driving trailer has a full interior, very realistically done

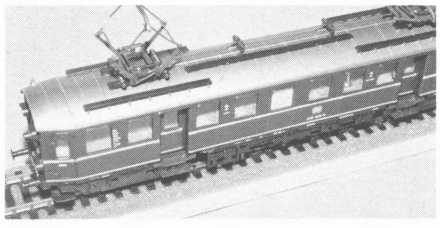




with slatted 'wood' seats and an interior is suggested in the driving cab, though is not fully modelled. The power car lacks interior detail because the power bogie and printed circuit intrudes, but Roco have arranged all this to fall below waist level (where the seats would be) so that full daylight is visible through the car. Roco close couplers are fitted as standard to join the two cars. There are no outer couplers but the pockets are there should you wish to add another pair and thus make a four-car set. Spare Märklin type couplers are provided. The accessory pack includes around 30 further parts, with end grab rails and all the brake and MU piping which can be cemented into the holes already provided, giving you a model with virtually all conceivable detail. Checked against photos of the real thing we could find no omissions. Power can be taken from the track or overhead, turning a screw to select the mode as with previous Roco models.

On the track this is another smooth runner with a fine slow speed performance. We didn't really try a 'time trial' with this one, but noted it took about 3min to creep along a yard of track. As the unit is 18 inches long this means it took about 3 minutes to cover, in effect, 18 inches of track! The coaches are quiet short in real life and we were pleased to find they were reproduced to exact scale length, unlike some German stock which gets compressed in model form because of its extreme length. This would be a most ideal set for a commuter style layout like the Neglinge scheme featured in the December 1980 issue. It is beautifully compact yet entirely authentic. For example, the set is very much shorter than the modern S-Bahn units which replaced it in service. If you are short on space and use tight curves, this attractive model is well worth consideration for a German style layout.

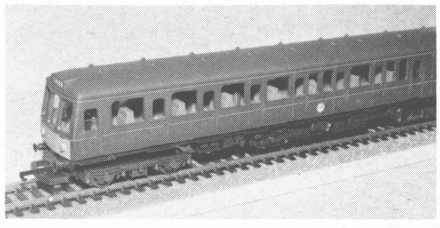
Our sample was supplied by Howes, 9-10 Broad Street, Oxford, who stock all Roco items and operate mail order if you have no local stockist.



Lima: BR Class 117, 1:76 scale/00 gauge, UK £15.65/5.99

Promised for 1980, the 'DMU' from Llma reached us just a few days before the Christmas holiday and is really the first Lima release for 1981. It is released in the BR DMU green of the 1960s and in current BR blue. It is promised also in blue/grey later. Though called a DMU by Lima it is strictly speaking a powered and unpowered 'dummy' version of the same thing, a Class 117/2 Motor Brake Second, a Pressed Steel Co vehicle on the 64ft underframe. When coupled together the two vehicles give a DMU effect, and there is so much chopping and changing of cars that it is not improbable that the two 117/2 cars may have run together as a two-car set, though we have never seen such a thing. Two motor brake seconds run together is something of an extravagance, however, and a normal three-car set would be the 117/2 motor brake second, a Class 176 trailer composite, and a Class 117/1 motor second. The Class 176 appears to be the promised trailer car which Lima will release in 1981, and the lack of a 117/1 motor second is obviously due to the production economies which all mass model manufacturers have to observe — the cost of tooling up for another body shell would add to the overall price of what are essentially reasonable priced models.

Taking things as they stand, we do at least have a very fine model of the 117/2 (now 117) which captures the contours and character of this very typical BR diesel unit. It is a Western Region type and is numbered in series correctly, the two units each having a different number. Ours was in green and the finish is excellent, best we've yet seen from Lima. The interior is fully modelled, too, with light brown moulding which gives a very realistic effect. The cab door lights are dropped, another nice touch. The windows are not flush, but the deep recesses don't seem to notice as they do on other plastic coach models, perhaps because there are many windows in a non-symetrical pattern. The underframe with its motor detail is superb, very accurate when compared to prototype pictures. The bogies are accurately patterned but are a little compressed in depth to allow generous swing on tight curves. This is only really noticeable at eye level viewing, however, and not really noticeable at all on the powered model because the power bogie fills the gap. No footsteps are provided under the cab and guards's doors on the bogie sides, but they can easily be added from Microstrip. Aside from this only the brake, heat, and MU connections, and speedo detail seems to be missing. The bogie wheels are scale diameter over flanges but under scale over treads, but they are nicely blackened, a pleasing touch by Lima.



We were most impressed with the performance of this model. All Lima diesels seen generally better than their steam outline models in performance. Though they may vary from model to model, ours ran very nicely indeed, smoothly, quietly, and very slowly on half-wave. With a good performance, accurate outline and dimensions, and good detailing, we must rate this as a definite 'plus' for Lima and it certainly fills a gap. Best of all, the basic model lends itself to quite easy modification and conversion to depict other diesel units. Indeed, as soon as we had finished testing our samples they went straight to our workbench for conversion, and a special article next issue will show you the result — a Class 121. But more are possible, and we'll be covering them, too. See next issue.

North Fylde Model Railway Club has been formed. Anyone inthe area interested should contact D. Packman, 49 Bispham Road, Blackpool, Lancs FY2 0SX (send SAE).

Bechenham & West Wickham Model Railway Club has a new secretary: G. M. Hayward, 42 East Street, Bromley, Kent. Send a SAE for membership details.

Wells Railway Fraternity have elected new officers. M. N. Shaw to chairman, H. F. Hyatt is treasurer, and secretary is E. I. Ferguson, Hartland, West Horrington, Wells, Somerset. Railwells '81' exhibition will take place on August 22-23 in Wells Town Hall.

Shopwindow
NEW KITS AND MODELS.

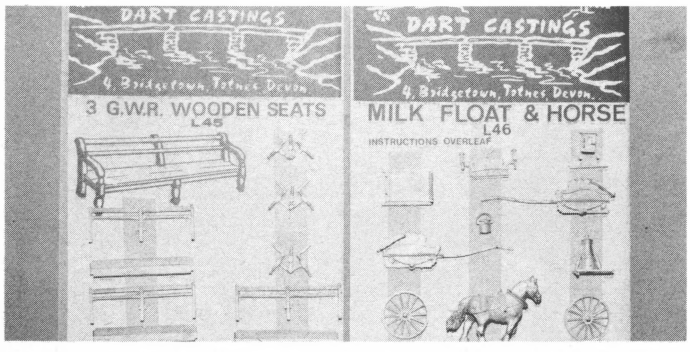
New items of interest to railway modellers are reviewed by the editorial staff or contributors and opinions expressed are theirs, not necessarily the views of the publishers. While every effort is made to give latest catalogue or recommended retail prices, prices quoted should be taken as a guide only due to variations in discounts, ex-charge rates, taxes, and postal rates. Most items are generally on sale in usual outlets, but addresses of suppliers are given where there is only limited availability.

Wills: Huts and Greenhouse kits, 1:76 scale, UK £1.37

Two more in this useful range of plastic building kits will be of great value for detailing yards and building plots. The first kit includes a traditional wood privy, complete with interior detail, and two 'grotty' huts — makeshift huts from stone and corrugated iron. These are sort of thing seen all over the place, on building sites, in rail yards, farm yards, and around factories. One is open-fronted, as might be used to store tools or cycles. The second kit gives a complete wood-frame greenhouse and two matching cold-frames, just the thing for any model garden or allotment. The greenhouse is designed so that it can be joined to one or more similar kits, thus making a giant greenhouse for a market garden. All parts are pre-coloured and are very cleanly moulded. These kits are available from your dealer, or contact Wills Finecast, Forest Row, Sussex.

Dart Castings: GWR Seats/Milk Float, 1:76 scale, UK £1/£2.50.

Latest kits from Dart Castings, 4 Bridgetown, Totnes, Devon will find a place on any layout with a country setting. The GWR seats are accurate models of the standard GWR pattern, but they are such typical seats that they could be used almost anywhere, not just on a GWR station. there are three in the kit, each being made up of five parts and requiring only minimal cleaning up before assembly with Five Minute Epoxy. The



milk float will bring back nostalgic memories for anyone who can remember the days (not so long ago in some areas) when you collected your milk in a jug from the milkman. He had a trim little horse-drawn float carrying a big brass churn, with a locker for the pint and half-pint measures used to ladle out your purchase. All this plus a bucket and the horse (but not the milkman or milkmaid) comes in the kit, which is a delightful production. If we quibble at all, it is with the Shire-type horse provided — usually a much lighter or smaller horse was seen, but it would be an easy matter to use a different horse if desired. The model will add an authentic touch to any model village street, best arranged pulled into the kerb with a few housewives and elder children lining up with jugs.

Ratio: Wagon and accessory kits, 1:76 scale, prices in text

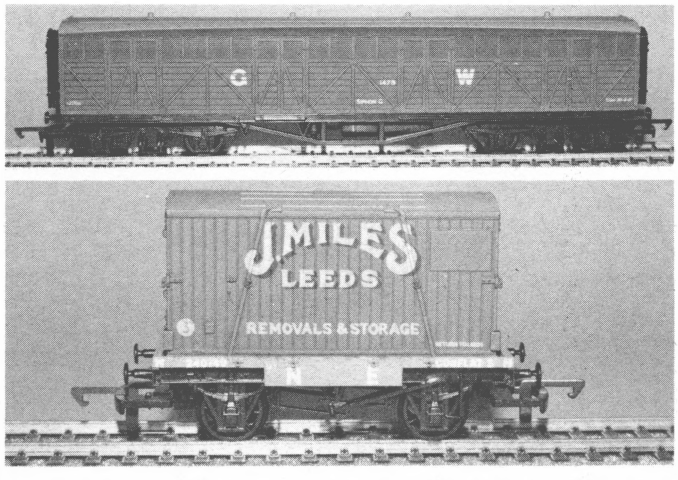
Ratio Plastic Models, Sturminster Newton, Dorset, have re-released two of their older 4mm scale wagon kits, very useful as they are not available from other sources. First is the very distinctive LNER (ex-NBR) cask wagon with its high slotted sides (UK 97p). No couplings are supplied but those of your choice can be fitted easily enough. Next comes the GWR Open 'C' tube wagon, again lacking couplers but including a good transfer sheet with a choice of numbers (UK 97p). Completely new is a most handy set of SR concrete slab fencing as often seen on stations but rarely modelled effectively. This kit comes with concrete posts and slabs and can be assembled to suit any site, including uphill! (UK 83p). Very good this. Finally there is a GWR/LMS Joint Lines standard loading gauge, a simple kit with base and post in plastic and with a fine etched brass gauge, compete with dummy chain. Fine plastic rigging wire is also supplied. Again this is a good kit, well thought out (UK 97p).

Chris Leigh: Accessories, 1:76 scale, prices in text

Chris Leigh of 46 Meadow Way, Old Windsor, Berks, offers an increasing range of useful small accessories. Latest to reach us are a set of cast GWR canopy colums modelled on originals at Staines West, but also known to have been used on Great Eastern stations. Price for four is 87p. Second new kit is for two LNER (ex-Great Northern) station nameboards, the standard cast concrete type. Price for a pair if 92p. The SR nameboards previously reviewed (December 1980) are now 62p. A complete list of available items may be had free from Chris Leigh in return for a SAE.

Airfix: Siphon G/Conflat, 1:76 scale/00 gauge, UK £4.25/£2.15

The classic Siphon G, originally built by the GWR for milk churn traffic, but eventually used for other things, is the latest rolling stock release from Airfix. It is produced in two liveries; the GWR chocolate is one finish (it was classed as passenger stock) and the alternative is BR maroon. The corridor-fitted Siphon Gs were among the longest lived of all GWR stock, surviving into the BR 'blue' age in some cases. Though intended for milk traffic, hence the louvred vents on the sides for cooling, Siphon Gs were later found carrying mails, newspapers, parcels, pigeons, and much else. The Airfix model is very precisely painted and detailed and rolls



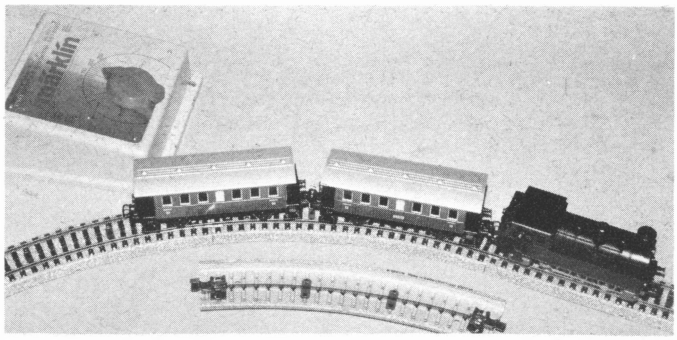
particularly well. Released with it is another version of the Conflat, this time a LNER variant with the attractive J. Miles container for furniture traffic. Again, the finish is superb.

Märklin: Local Passenger Set, 1:87 scale/HO gauge, UK £29.81

Märklin is one of the great names in model railways, and was one of the first companies in the business. They produce gauge 1, the unique gauge Z, and standard HO. In West Germany they have the biggest output of all in a very active market. Märklin HO was developed in the days when three-rail was the normal commercial system (and when Hornby-

Dublo and Trix were the other big names to conjure with). Over the years two-rail systems became standard for most makers, but Märklin has always retained the original style for the main HO range, though their system is actually stud contact which was developed to obviate the ugliness of a centre rail. With stud contact the centre rail is actually a wire under the sleepers pushing a stud up through each sleeper (cross-tie) where it is barely visible. A long sprung pick-up (or skate) under the loco ensure that some studs are always touching some part of it and providing the current. The current was (and still is AC) so the system is substantially different from the 12V DC of other major makers. Standard Märklin track was (and still is) a tinplate affair just as the old Hornby-Dublo was. The ballast is printed on a dimpled surface and the sleepers are printed on the base. However, in recent years a more realistic Code 100 track (K track) has been introduced which gives a similar appearance to two-rail tracks, though it is more elaborately made since it has to carry the stud system within the sleepers. In addition to all this Peco have for years produced a stud contact strip which fits ordinary Streamline track to make it suitable for Märklin operations.

It might be thought that demand for such a system had died, but this is far from the case and Märklin sales have been bouyant for years. There are some old-fashioned virtues in three-rail, chief among them being that the electrification system is much easier to manage. Reverse loops, for example, are no problem. Märklin themselves have reduced the wiring to a pretty simple system of colour codes and push-button controls and the wiring diagrams they supply with turn-outs, etc, are very easy to follow as we discovered when trying some K track. With the models themselves Märklin claim to go for quality rather than work down to the cheapest prices. Thus, in an age when plastic is almost univerally used for commercial model locos and rolling stock, Märklin use more die-cast bodies than anyone else, but they do it so well in terms of finish that it is not always easy to tell that the model is made of metal rather plastic. Having stuck



with the third-rail system for all these years, however, Märklin are clearly aware that more serious modellers are two-rail enthusiasts. Thus nearly all their models are also done in two-rail 12V DC versions, under the Hamo name. Most have the Fleischmann-style accessory stud in the chassis, too, so they are fully compatible with other Germany sytems.

Nonetheless there are a lot of people sold on the Märklin reputation of foolproof operation and durability, so the standard three-rail (or stud contact) system continues to thrive. We've had the basic 'starter' set from the Märklin range to see what an absolute beginner might get. Well, apart from the modern foam packaging it has a rather pleasing vintage air about it. The standard track with tinplate base is provided as a basic oval, there is a 12V AC power unit, a simple 0-6-0T loco (with plastic body) and two local train coaches in tinplate very much in the tradition of 40 years ago. The track units click positively together and the loco purrs along with a speed range from a slow crawl. Everything worked straight from the box though it was necessary to change the German plug for a British one on the power unit lead. A young modeller who tried this was delighted with it, and clearly if you stick with Märklin nothing in this set would be wasted as you expanded the layout.

From the point of view of the more serious enthusiast,

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TM

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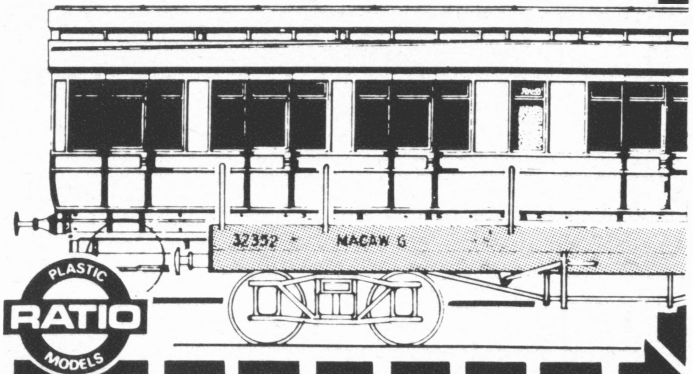

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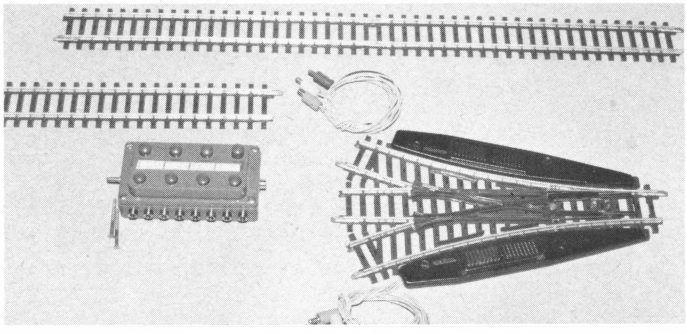
however, if the Märklin system was preferred, there are no sets at present on sale with the realistic K track included. Therefore, if we were venturing into the system we'd be more inclined to buy one of the small Märklin diesel or steam locos and K track to suit, rather than get involved with a set as such. Also Peco Streamline with their stud contact strip could be used.

UK distributor of Märklin is A.M. Richards, 6 Richmond Way, Fetcham, Leatherhead, Surrey. Send £1.50 if you want the hefty all-colour Märklin catalogue which shows the great extent of the range.

Märklin: K track system, HO gauge, prices in text.

The standard Märklin track is tinplate-based and is actually called M track. K track is the newer system with plastic sleeper base to resemble the Code 100 sectional track used with two-rail. At a distance it is very similar but close examination shows studs coming through the sleepers (and virtually invisible at a normal viewing distance) and a metal liner within the sleeper base to carry the current. Don't be fooled, however, for this track won't work with two-rail locos - stud - contact only. Flexible 900m lengths are available (UK £2.73) and 180mm straights (67p), 424mm curves (72p), and terminal rails (£1.90), in other words all the usual track pieces you will find in other ranges.



The track radius is based on 360mm, 424mm, 554mm, and 618mm curves. We had a three-way turn-out (UK £14.03) which comes ready wired for remote operation. A standard turn-out costs £17.05 for a left and right pair sold together. We had with the turn-out a standard Märklin control unit, one of three available for the various turn-outs and signals in the range (UK £3.33). This unit is simplicity itself to rig as Märklin have colour coded wires on their turn-outs which just plug in the appropriate sockets and to the accessory output from the power unit, while two screws are also supplied to attach it to the baseboard. The entire K track range should also interest anyone with old scratch-built stud contact models.

Linked with the K track, Märklin also produce a track plan book (item 0370), a substantial volume (UK £3.66) with 16 layout suggestions using K track and complete building and materials details, colour printed throughout and with fold-out pages. Each layout is shown as completed with all scenic, structural, and control features covered. A full run down on K track geometry, components, and wiring is included. English text is included. A.M. Richards can also supply this book.

Roco: VTG Ferry Wagon/Bulk Hopper, 1:160 scale/N gauge, UK £2.50 each.

Two newest Roco N gauge models to reach us are admirable examples of plastic engineering. The Ferry Wagon is a reduction from the HO model (reviewed October 1980) and is similar in all respects save that handwheels and other small parts are integral with the body moulding and not separate fittings. The only separate parts supplied are end handrails which are to be affixed by the purchaser in the holes provided at the ends. The brake hand wheels should be picked out in yellow for perfection — they are moulded black. This model will interest followers of British outline N gauge because it is intended for ferry traffic, built to British loading gauge. At 1:160 scale it looks a little under size against British 1:148 scale models. However, because of its length and bulk it was not too noticeably small against 1:148 scale stock. Contrast with European loading gauge height can be seen in the photo

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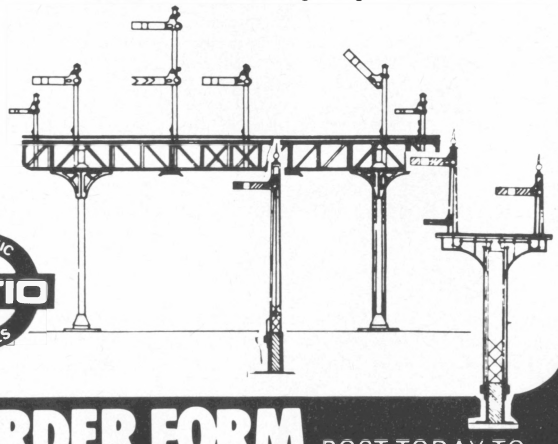

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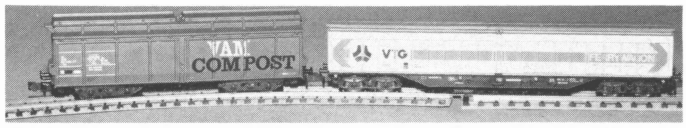
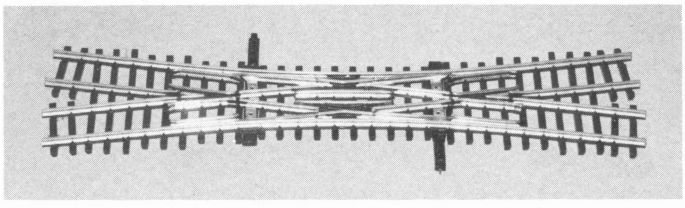


with the wagon next to the other new release — the standard large capacity hopper. This is a beautiful model marked Vam Compost for fertiliser traffic. As our samples have arrived ahead of the 1981 catalogue we have not seen what Roco themselves have to say about these new models, but if they follow precedent they will undoubtedly be offering both in alternative finishes. Our samples were supplied via Howes of Oxford, a leading British Roco stockist if you have no local supplier.

Shinohara: Double slip, N gauge, UK £8.95.

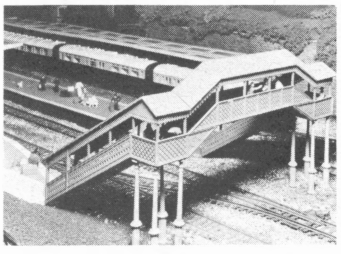
This is the latest addition to the Shinohara N gauge track range and follows the usual style, with cleanly moulded sleepers, insulated frogs, and strongly riveted notched tiebars which are obviously intended for use with lineside track levers or 'add-on' point motors. The entire unit is 165mm overall. We tried this with various locos and all ran well through the frogs. In fact the design is notable in having the check rails and point blades cunningly matched for length

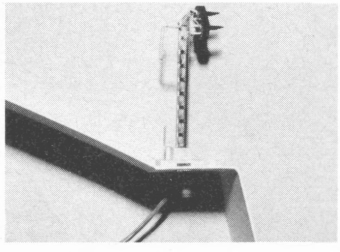


so that there are no gaps into which the wheels can pitch as stock runs through the unit. Smooth transition of the complicated looking frogs is, indeed, the pleasing feature of the unit and it should give trouble-free service. There are no rail joiners supplied. Our sample came from the importers, Victors, 166 Pentonville Road, London N1.

Hornby: GWR Footbridge, 1:76 scale, UK £2. 95

Hornby's first official release for 1981 is an excellent plastic kit which assembles into the standard style of GWR station footbridge. Actually it depicts a lattice type, but it has a 'solid' appearance; this greatly simplifies production for Hornby, but it is protypical because these lattice bridges were often sheeted in to keep out the wind and smoke. Also featured is a corrugated canopy. The design allows the bridge to be mounted on the ground or platforms. In the latter case some sections of the roof and steps must be cut away and the instruction sheet shows how. GWR monograms are cast in — if you sanded these away you could use the unit on non-GWR layouts without its looking to out of place. The bridge spans two tracks.



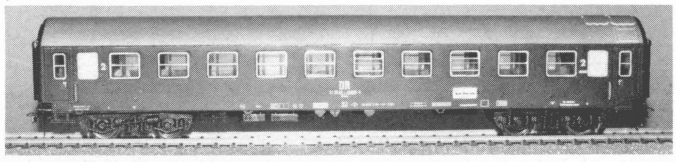


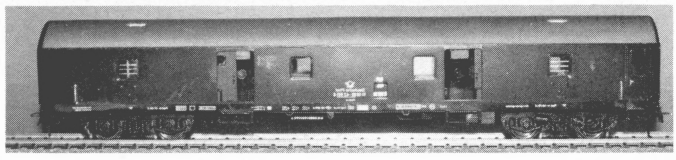
Schneider: DB Colour Light Signals, 1:87 scale, prices in text

Howes of Oxford, 9-10 Broad Street, Oxford, OX1 3AJ, import the Schneider signal range from West Germany, and we have had a sample for review. Essentially these all follow the same style but differ in appearance and the number of lights depending on the signal function. Modern LED displays are used, and the minaturisation makes possible working signals which are virtually fine scale. The leads are taken up the posts or lattice masts and even the backs of signals with the wire connections don't *look* non-prototypical even though concessions have to be made to scale to complete the electrical connection to the diode. All bases are plastic simulating concrete and the mast functions as an access ladder. A generous length of wire is provided and in our picture the signal has been stood on its card backing sheet to show how the wire is led through the basboard. The Vorsignal (roughly equivalent to a British distant signal) as pictured is £5.80 complete. A Hauptsignal costs the same, and a combination version is £10.35. Shunting signals and crossing flashers with the related relay unit cost £5.30 Spare bulbs cost 33p each, and a full colour leaflet is available from Howes in return of a SAE. This is a useful range. They are not the cheapest, but the quality is impressive.

Piko: B4 Coaches, 1:87 scale/HO gauge, UK £4.36 each

These are not new, but if you operate German models them they will be of interest. Piko produces a whole range of standard East German DR express coaches as in current use. We had a set for review, comprising a B4ge (2nd class), AB4ge (1st/2nd), and A4ge (1st). Also available is the matching mail van II/24-2 on the same chassis. This has sliding doors and similar steel-type body. All the models are in plastic with neat printed markings. flush fitting windows with bright surrounds (and some 'dropped' panels), and





excellent interior detail. They are smooth runners with commendable close coupling. Märklin type couplers are standard but Fleischmann type are supplied as an option with each coach, allowing a quick change over. In real life the Czech Railways (CSD) and Hungarian Railways (MAV) both use the same coaching stock and coaches from all three railway systems are commonly seen in West Germany, notably the DR and CSD versions, all on through workings. Therefore even if you model DB, these coaches are completely appropriate, for your train can include sections (eg, 1-3 coaches) for destinations in the east. The UK Piko distributors are Eastern Models, 29 The Knole, Hayes, Bromley, Kent.

Arnold: ET 4 Street Car, 1:160 scale/N gauge, UK £26.61/£5.99.

In N scale the only ready-to-run tram models know to us are the Arnold trams introduced a couple of years or so ago. These depict a MAN/Simmering car and trailer of 1909, and the set is available in two different liveries — current Salzburg SVB and the pre-war DR (see page 113) in green and white. There is a detail difference in the destination board fits to the roof. The DR version was for what amounts to a 'country tramway', the Königsee to Berchtesgarden, owned by the railways but operated as a tramway. The SVB trams still ply the Salzburg-Lamprechtshausen route. For a model just 6cm long the price seems high, but as usual you are getting the superb Arnold precision and quality, and the power car just purrs along quite flawlessly and will crawl very slowly for good measure. It took 4 inch radius curves in its stride. The finish of each model is quite impeccable, as is the detailing. There is room to add some passengers in the trailer, but a mechanism occupies most of the power car. However, cleverly frosted windows give an impression of 'see through' which is remarkably good and you are hardly aware of the motor inside. A sprung folding pantograph acts as a dummy pick-up for the Arnold catenary system. More than £30 is needed at RRP if you are to furnish yourself with a car and trailer, but the faultless performance put up by our test model suggests you will get value for money. Our sample came from the UK Arnold distributors, Model & Tool Supplies, 604 Kingston Road, London SW20.

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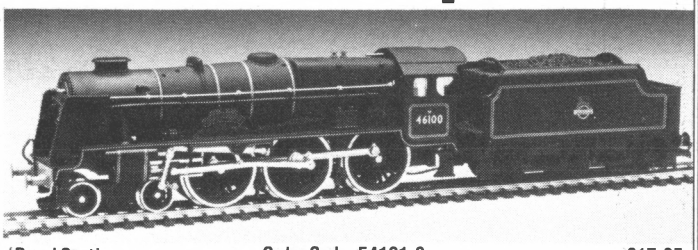
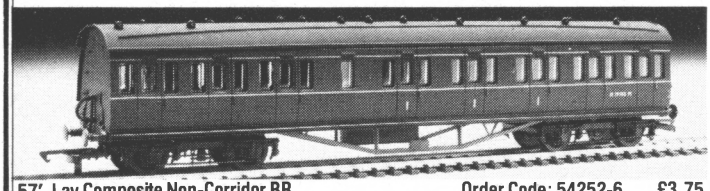
To go with this super loco, we can offer 2 appropriate **BR coaches** modelled as 1957-57 both 57' non-corridor suburban coaches at only **£3.75 each**, a saving of £2 when you buy them both.



'Royal Scot' Order Code: 54121-3 £17.95

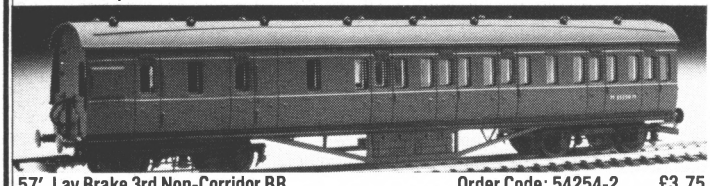


57' Lav Composite Non-Corridor BR Order Code: 54252-6 £3.75

4F Fowler BR Order Code: 54123-9 £11.95

These coaches are also the ideal companions to make up a passenger train with the **British Rail Fowler** Loco. The Fowler was first built in 1911 and used right up to 1966. Modelled here as 1950-57. Original model power Class 4F, traction effort 24,555 lbs.

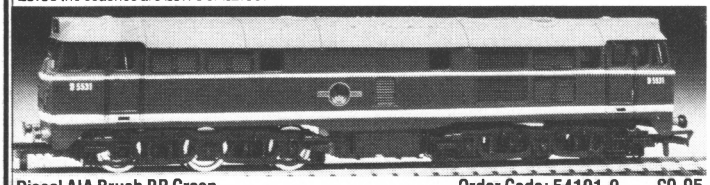
We have also picked out the **LMS Livery Fowler**, modelled as 1928-37 and two coaches to go with it. Both Fowlers are fitted with the Airfix 'Ringfield' motor and will cost you **£11.95 each**.



57' Lav Brake 3rd Non-Corridor BR Order Code: 54254-2 £3.75

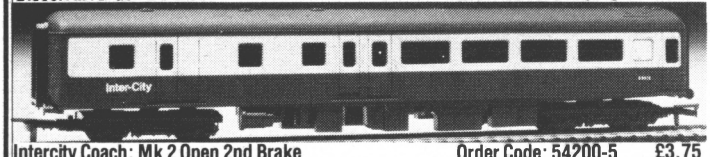
Closer to the present, the **Diesel AIA Brush, Type 2, Class 31.** Date as modelled 1957-67 and **3 Intercity coaches** to go with it. The loco's were originally power Class 2 with traction effort of 42,000 lbs this model is fitted with a powerful 5 pole motor that will pull 50 + wagons or coaches with ease and will cost you only **£9.95** the coaches are £3.75 or £2.95.

4F Fowler LMS Order Code: 54122-6 £11.95



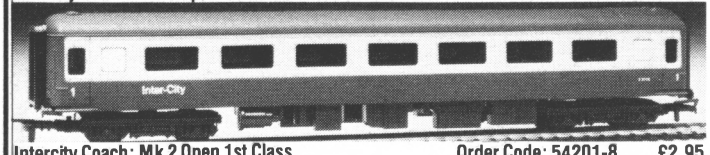
Diesel AIA Brush BR Green Order Code: 54101-9 £9.95

LMS Passenger Coach 57' Brake/3rd Corridor Order Code: 54204-7 £3.75

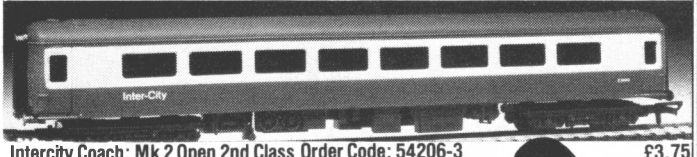


Intercity Coach: Mk 2 Open 2nd Brake Order Code: 54200-5 £3.75

LMS Passenger Coach 60' 1st/3rd Comp. Corridor Order Code: 54202-1 £3.75

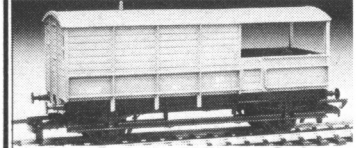


Intercity Coach: Mk 2 Open 1st Class Order Code: 54201-8 £2.95



Intercity Coach: Mk 2 Open 2nd Class Order Code: 54206-3 £3.75

We have also chosen a few splendidly detailed goods wagons to round off our offer and your layout. One of the best features of the GMR range is the quality of the printing and nowhere is this more evident than on this **Highley Mining Company 7 plank** wagon. The fine detail is superb and we can offer it for only **£1.50**. In addition, we have the **BR Lowmac Wagon & Case** and **20T Goods Brake Van £1.35** and **£1.50** respectively.



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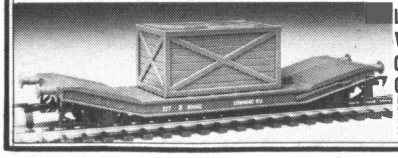

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Trainlines

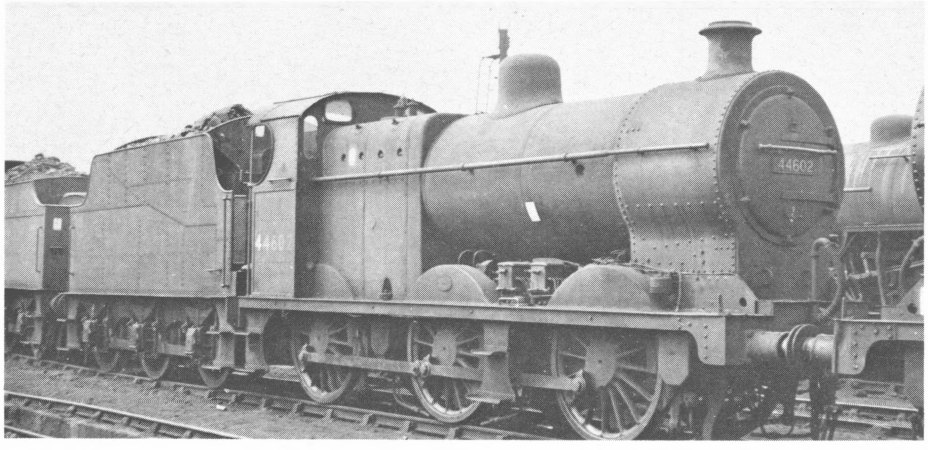
LETTERS TO THE EDITOR.

4F tenders

I was very interested in the Fowler 4F article in the December 1980 issue and have a photo of a further variant. The odd loco of the final batch had a Stanier high-sided tender, although unlike those fitted to the larger classes it was straight-sided. It was taken at Gorton shed on July 29, 1962.

M. J. Burnett, London N11.

Mr Burnett's 4F photo is reproduced on this page. Another photo of this type appeared in the Jan 1980 issue. **Editor.**



Brake fluid

I refer to the article 'Super-detail for the Prairie Tank' by Mike Wightman in the Janaury 1981 edition of *Model Trains.*

I was interested to note Mr Wightman's comments on the use of brake fluid as a paint remover. He states that he has not had any problems on plastics or adhesives. However, this has not been my experience and prospective users should be advised that its affect on adhesives may eventually prove to be detrimental.

First, with regard to plastics, I have not experienced brake fluid deforming any plastics. However users should not expect a finish that can be utilised without repainting. The surface may become tarnished after application of the fluid but this will depend upon the type and finish of the plastic and the length of exposure.

Secondly, with regard to adhesives, it has been my experience that brake fluid will attack adhesives and affect both strength and bonding. Clearly though, the effect on the adhesive is dependent upon the length of time the adhesive is exposed to brake fluid, however even a short exposure may eventually be proved to have been detrimental to the adhesive.

It has been my experience that even the most stubborn paint will eventually yield to brake fluid and that depending upon the type of adhesive and the material used in a kit, prolonged exposure will result in a weakening of the adhesive, allowing the kit to the dismantled. I would advise always to experiment and observe the affects, if any, before committing the whole model to the brake fluid, so as to avoid either a deformed model or a disintegrating one. Modellers should not be dissuaded from using brake fluid however, as it provides a very effective method of removing paint from plastics.

R. A. Dixon, Leicester

Southern models

I am sorry if I gave the impression that I am not interested in the projected Airfix 'Schools; this is quite the opposite of that intended. Several of my friends, including non Southern types, have expressed an interest in purchasing one, so I feel that this and the Bulleid stock will do well *once* they appear in the shops.

I am afraid I am not keen on the multi-chassis method of extending a locomotive range, the result is nearly always peculiar, unless the chassis is basically correct. The trouble is that this philosophy spawns locos like the Hornby E2 0-6-0T. Although this model is much better than earlier efforts, it is as Mr Dimmock remarks, hardly the most popular choice from the Southern fan's viewpoint. If it's a Southern tank that's required surely the best choice would have been a Brighton Terrier 0-6-0T or Drummond LSWR M7 examples of which are preserved? The use of a medium sized 0-6-0T mechanism precludes this of course; this is born hybrid E2, half LBSCR, half Midland. Let's hope for the sake of future Southern products that Hornby make the correct decisions.

The recently projected or released LMS Crab, LNER B1, B17 and V2 and Southern 'Schools' from the main RTR makers are not exactly new ground, although they do represent a great step forward for the modeller wanting a balanced locomotive stud. In this the LMS now seems to be winning, but the SR trails sadly well behind. Notwithstanding this, every new model represents a considerable investment risk these days, so let's hope they all get the support they deserve.

Although I am personally critical of the current Southern RTR range, I would stress that this hasn't stopped me buying the lot, even when they have been subsequently modified or discarded. For example is no good wanting more Southern, comparing the Hornby E2 with the Airfix GWR 14XX tank, then buying the latter because it looks better. The answer (if you want more Southern) is to buy the E2! Better still save up and buy both, but don't neglect the Southern ! Remember if you reject the Southern locomotive, manufacturers and dealers will conclude. 'Ah it didn't sell because it was Southern', not 'Ah it didn't sell because it was a poor model.'

T.R. Ingrams, Sidcup, Kent.

No more letters on this interesting subject please. We've had to shorten this one. The Hornby BB and 'Schools' will help out this year. We'll be featuring more articles specifically for Southern modellers later on. **Editor.**

'Duchess' colours

With reference to recent correspondence on the colour schemes of the ex-LMS Duchess class locomotives, there is no doubt whatsoever as to the true facts. Most of them are in published works but for the benefit of readers who have no access to the information, the situation is really quite simple.

Locomotives 6230-4 were the *only* members of the class in *non-streamlined* form to carry LMS lake livery. The colour was defined in 1938 by the LMS as Midland Lake and the lining was executed in gilt with a fine vermilion line at each side of the gilt. These gilt/vermilion lines replaced the normal LMS yellow lining colour on these five engines only, the rest of the livery being to the standard LMS layout with black edging outside the lining. The preserved 6233 at Bressingham has been restored to this condition and livery. This special lining treatment was unique to 6230-4 and only lasted until first repaint.

The only other *red* 'Duchess' locos in LMS days were the streamlined 6225-9; 35-44 (plus 6221 repainted from blue to red). These had the special striping in gilt/vermilion.

During BR days, 16 of the class (now all in non-streamlined form) were painted crimson lake from 1957 onwards, most of them lined in LMS fashion (but with BR crests and numbers, of course), On *these* engines, the LMS pattern of lining was executed in chrome yellow and can be observed on the preserved 46229 at the National Railway Museum. Oddly enough, 46230-4 were never repainted red by BR, the 16 thus decorated including several which had never been red before.

D. Jenkinson,
National Railway Museum, York.

Headcodes

With reference to your article 'What did those diesel loco headcodes mean in the June 1980 issue, there are a couple of points I would raise.

First the picture at the top of page 317, the 'Warship' at the rear is stated as having 'an extemporised frame holder for a *four* digit headcode'. Reference to the Bradford Barton book on the 'Warships' shows that these frames were in fact *three*-digit (as on ex GW steam locos) and on the introduction of the Western region 4-figure system these frames displayed the letter and individual train number while the first character was represented by the discs in the traditional position of the

headlamps of steamdays.

Secondly, a point of interest for owners of the popular Lima or Hornby 'Western' class diesel; in their last year (1977-78) some members of the class displayed instead of the '0000', the individual loco number such as 1065 *Western Consort* and 1015 *Western Champion*, this irregular practice being possible because the running nummber involved a zero which could be conveniently represented by the letter 'O' of the second character.

It is perhaps unfortunate that you have only been able to use as examples SR 4-figure reporting numbers since these have never been displayed by the trains themselves (as you point out) and are thus not of practical use even to SR modellers. Some WR and LMR codes are shown below:

A: LONDON DIVISION (WR) B: BRISTOL DIVISION C: CARDIFF DIVISION.
LMR:
A: EUSTON: B: EUSTON, RUGBY;
C: ST. PANCRAS; MARYLEBONE: MANCHESTER (NORTH) D: CHESTER, NOTTINGHAM: F: LEICESTER; G: BIRMINGHAM; H: MANCHESTER (SOUTH), STOKE-ON-TRENT; J: MANCHESTER (NORTH); K: CREWE, LIVERPOOL (LIME ST), LIVERPOOL (CENTRAL); L: PRESTON (EXCLUDING FYLDE); BARROW, CARLISLE; P: BLACKPOOL & FYLDE, DERBY.

The source for the LM codes is the February 1961 *Trams Illustrated* and this quotes the introduction date for these codes for the Crew-Liverpool/Manchester electrified services as January 2, 1961. I have several photos which largely bear out that these codes were the ones in use until the withdrawal of the codes in 1977.

I hope that these notes may be of some use, I must say I hesitate to criticize such a basically useful article but I feel the usefulness of such articles can be enhanced by further information on the topic. I would like to congratulate you on your magazine of which I have all the copies so far issued and I have found it to be most interesting and informative.

Incidentally only 1023 *Wester Fusilier* ever acquired the 'two dots' marker light display. This was required for an Eastern Region tour to comform to ER rulings.

Mark Dearman, Norwich

Clubs, Societies, and Exhibitions

Western Model Railway Society is based at 265 Horn Lane, Acton, London W3. Anyone in the West London area interested in joining should send a SAE for further details to David R. Sharps, 110 Churchfield Road, Acton, London W3.

Blyth and District MRS have their 1981 exhibition on May 30-31 at St Cuthberts Church Hall, Blyth, (opposite Steamboat Inn), 10am — 6pm both days. Admission, 40p adults, 20p children, £1 family. They expect to display about 8 layouts, plus trade stands and a model competition.

South Tynedale Railway Preservation Society have an exhibition on Saturday and Sunday March 7-8, at St Mary's Hall, Bridge St, Sunderland, Saturday 10am — 10pm, Sunday 10am — 7pm. Adults 40p, children and OAPs 20p.

Hamilton & District MRC have an exhibition on Saturday 2nd and Sunday 3rd May, 1981. 10.00-18.00 (sat), 11.00-18.00 (sun). Venue is Hamilton Town Hall, Lower Auchingramont Road, Hamilton. Adult 50p, child 25p, family £1.20. There will be six working layouts, the centre piece being Mr. J. Metcalfe's excellent Hornby 0 gauge tinplate layout, trade and preservation society stands and light refreshments.

Orpington and District MRC have an exhibition on Saturday, April 4, 1981, at the United Reformed Church Hall, Widmore Road, Bromley, Kent. Buses 227 and B1 pass the door. Stations: Bromley South, Bromley North. Opening times are 11.00am — 6.00pm. Adults 40p, children and OAPs 20p, family £1. There will be 7 layouts, a trade stand, a preservation society stand, and refreshments (afternoon only).

Andover Model Railway Club have an exhibition on Saturday March 28, 1981, at the Andover Sports Centre, 10.00am — 6.00pm. Adults 40, children and OAPs 25p, family £1. Several visiting layouts will be displayed, plus two trade stands, and the GWS and TRPS.

21C170 'Manston' Loco Preservation Group are holding a combined model railway exhibition and swap-meet, on Saturday February 28, 1981, at the Sunshine Rooms, Dreamland, Margate, Kent, from 10.00am — 6.00pm. Adults 40p, children and OAPs 20p, family £1.

Clay Cross MRS has a new secretary, David Harding, 6 Fishponds Close, Wingerworth, Chesterfield.

Association of Model Railway Societies in Scotland have their 15th annual exhibition at the Macbellan Galleries, Sauciehall Street, Glasgow, on Friday March 6 (12.00 — 21.00), Saturday March 7 (10.00 — 18.00), and Sunday March 8 (10.00 — 18.00). Adults 60p, children 30p, family £1.80.

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BR Green Buffet	£3.85	**£2.75**
BR Green Full Brake	£3.85	**£2.75**
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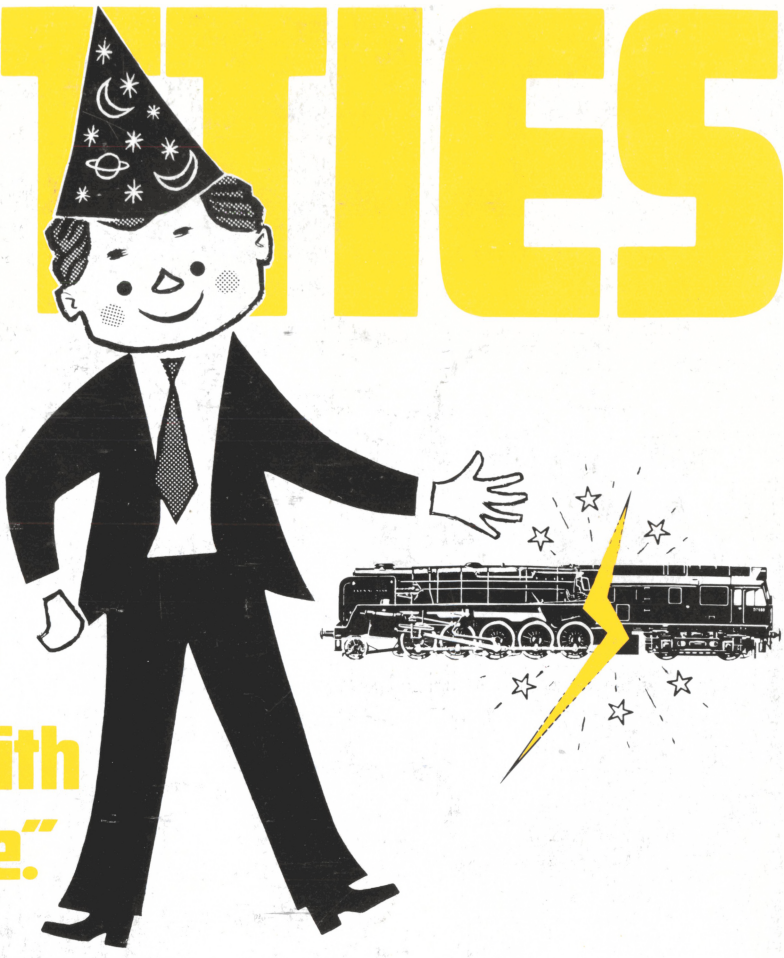

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